The Australasian MANUFACTURER

XXXV - No. 1763.

Resident at the 0.700 Sydnig to

Saturday, June 3, 1950.



BALL & ROLLER BEARINGS

Absolutely perfect finish and accuracy of reces.

Balls and Rollers have a mirror finish.

Extruded brass cage, floating on inner ring, not on the balls and rollers, reduces wear on the balls and rollers, eliminating cage breekages at high speeds and is conductive to perfectly silent running.

COMMONWEALTH DISTRIBUTORS

GARDNER WAERN & CO. PTY. LTD.

401 Flinders Street, MELBOURNE Flore - - - MU 9461 (5 Res)

ATE DISTRIBUTORS

Watt Street, NEWGASTLE Plants - - - Noveastle 8 1807

200 Clorence Street, SYDNEY Phone - - - MA 9134 (E fines)

ADELAIDS

- - HARRIS SCARFE LTD

WAYMOUTH SERVICE LTD

- - - - - - - - BRITISH GE

MOTOR SHIPPLIES PTY LTD (Automotive)

- FLOWER DAVIES & IOHNSON LT

COVENTRY MOTOR REPLACEMENTS

LAUNCESTON - - HOBART - - W. & G. GENDEPS PTY, LTC.

AFTER BUSINESS HOURS

Here, There and Everywhere

(By William Beecham.)

The views expressed in articles published in this section are those of the contributors and not necessarily those of "The Australasian Manufacturer," They are selected for their interest value, whether controversial or not, and the comments of readers on the subject discussed are always welcomed by the Editor.

When you sit alone in the moon-

Forsaken by women and men; resolutionmake one staunch

To never eat onions again. .

All too frequently a fight for what is right degenerates into a quarrel for what is left.

"The American Journal or Public Health", dealing with in-dustrial nurses employed in factories and the like, gives the following recommendations: She should have an interest in and an ability to work effectively

all types of people; she should herself have good physical health; she should have a fair share of resourcefulness; she should certainly have emotional stability; she should have initiative and judgment; she should have especially ability to organise. nursing supervision is not provided (where the nurse works in the plant alone); she should have the ability to appreciate the importance of one worker's health the efficient operation of industry as a whole; and, in addition to all this, she should be fully qualified and have previous experience. Excellent advice, but one is inclined to wonder where

this paragon of virtues is to be found and once found how other people (including not a few lone males) are to be kept from stealing her from under our very

PLEASE NOTE.

I'd be youthful to-day If time could be reckoned
By people who say,
"I won't keep you a second."

Young widows have an unfair advantage over single girls—they know all about men—and the only men that know all about them are dead.

A leading American business counsellor says that reliable statistics show that the average counsellor worker in factories loses from six and eight to ten causes. "In spite of this fact." he adds, "most factory health programmes are still directed tional causes and fone towards lowering the ards lowering the causes of causes of non-operational situ-ness. A large part of non-occupational time lost is due to occupational time lost in que to the illness of the employee or of someone in his family, and there-fore there is need for an over-all industrial health programme which should reach every em-arge indusployee, not only in large indus-tries, but in small industries as Industrial safety and programmes should be health correlated

actually inseparable. The main reason why safety programmes are given more thought than health programmes is because of violence which accompanies injuries and death resulting from nsafe conditions and practices. But a man who dies from pneu-monia, heart disease or cancer is just as dead as the man killed by a fall or crushed by a machine. It might well be remembered that many a man contracts pneumonta because he stays too long on the job with a cold."

WARNING.

A young Sydney fellow named Ned Dined before going to bed On lobster and ham, sweet pickles

And when he awoke he was dead.

A British toy railway set is now to be seen in Australian stores—made even more life-like by the remote-control opera-

Why editors resign: From Mrs. Roosevelt's syndicated column-"After supper with the men, we went upstairs to dress." . . . a New York newspaper adversigned for dressy wear. But so serviceable that lots of women wear nothing elese." . . From an Australian Australian newspaper-"George Collins was bent man." . . . From a Canadian newspaper—"No has yet been set for the bedding of the couple." . . . From an of the couple."... From an advertisement in an American newspaper—"Attractive rooms.



Tested & guaranteed Fittings for use with STEAM, GAS, AIR. PETROL, etc.

as under

S.T.G. VALVES.

S.T.G. PETROL TAPS.

S.T.G. OIL LUBRICATORS.

S.T.G. GREASE GUNS.

S.T.G. COCKS.

S.T.G. DRAIN TAPS.

S.T.G. GREASE CUPS.

S.T.G. MOTOR CONTROL LEVERS.

S.T.G. PLUMBERS' SUPPLIES, etc.

Stocked by Leading Distributors throughout Australia MANUFACTURED BY

BOWDEN STREET, ALEXANDRIA, N.S.W.

Representatives : A. V. WATT & SONS, 14-16 St. Francis Street, Melbourne, Vic. ERIC D. WELSH, 303 Adelaide Street, Brisbane, Old. C. H. SCRUTTON, Thorngate Building, Pulteney Street, Adelaide, S.A.

R. PALMER PTY. LTD., 75 King Street, Perth. W.A. J. N. MURDOCH, 147 Liverpool Street, Hobart,



WOOD, WOOL AND FRUIT CONTAINERS

of Every Description. Baskets for Strawberries, Blackberries, Raspberries, Loganberries.

AUSTRALIAN BERRY BASKETS CO.

175 Kent St., RICHMOND, VIC. 'Phone: J 1263.

500 Kent Street, SYDNEY Phone: MA 5756.



Everything furnished. Venetian blonds." . From a New York newspaper headline—"Congress Probes High Cost of Loving."

A Goulburn store publishes the following, with abject apologies to Rudyard Kipling:
If you can smile when things go

wrong And say it doesn't matter; If you can laugh at cares and

And troubles make you fatter!
If you can keep a cheerful face,
When all around are blue—
Then have your head examined,

Pal; There's something wrong with

you!
For one thing I've arrived at—
There are no "anda" and "buts"—
A chap that's grinning all the time

Must be completely nuts!

They Said: About The World—"A man may know the world without leaving his own home" (Lac-Tsze) . "Knowledge of the world is to be acquired only in the world not in the closet" (Lord Chesterfield) . "We live together in a world that is bursting with sin and sorrow" (Samuel Johnson) . "The world is full of beauty" (Gerald Massey) . "It is a world to see" (John Lyly) . "They most the world enjoy, who least admire" (Young).

To continue with our facts about industrial health: A healthy worker with a healthy family is likely to have a low absenteeism

rate. He can usually be expected to cover his expected quota. But a worker who is not in good health is likely to have a high absenteeism rate. He may become indifferent and careless. He may be accident prone. He may, in short, be a poor bet.

come indifferent and careless. He may be accident prone. He may, in short, be a poor bet.

Did You Know—That the peak strength of U.S. Army and Air Force troops in the South West Pacific (September 30, 1945) was 1,372,802; that the peak strength of U.S. Army and Air Force troops stationed in Australia (May 31, 1944) was 506,702; that U.S. casualties, killed or died, Army and Air Force troops of the control o

On Our Bookshelf

"Grinding Practice"

We have just received from the publishers, McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York, a copy of "Grinding Practice", by Fred. H. Colvin, Editor Emeritus of "American Machinist", and Frank A. Stanley, formerly editor of "Western Machinery and Steel World", both the writers being, in addition, authors of a number of well-known technical works.

The authors point out that advances in grinding during the

past fifty years have raised it from a mere method of polishing to a major operation in the machining of metals and of many other materials. To-day it extends from the roughing of, cast or forged surfaces to the finest finish yet known. Gauge blocks, for example, can be ground accurately to almost unbelievable limits.

The book gives a broad general view of the machines and methods in use in modern grinding practice and provides such detailed information as is calculated to be of the greatest possible service to those directly concerned.

The work is profusely illustrated and scientifically divided into nine major sections, includ-

ing (1) The Grinding Machine in Industry; (2) Cylindrical Grinding in General; (3) The Centreless Grinder; (4) Size Control in Precision Grinding; (5) Surface Grinders and their Work; (6) Grinding Crankshafts and other Motor Work; (7) Cutter and Tool Grinding Methods; (8) Types and Uses of Grinding Wheels; (9) Lapping and Honing Machines.

As grinding is a vitally important contributing factor to highgrade work in virtually all mechanical fields, this book will be of interest to the whole Australian engineering world.

The work may be inspected at the head office of "The Manufacturer", 16 Bond Street, Sydney.

"REXMAN" PRECISION BUILT 4½ INCH. BACK-GEARED, SCREW-CUTTING



BENCH LATHES

H. R. GOFF PTY. LTD

328 Flinders Street MELBOURNE 'Phone: MU 1902 Wingello House, Angel Place SYDNEY 'Phone: BL 2139



Advertisement of



REPRESENTATIVE IN AUSTRALIA FOR THE BRITISH THOMSON-HOUSTON COMPANY LIMITED, ENGLAND

Australia's Largest Refinery

STANDARDISES ON

is called for, trucks leaving B.O.R.A.L. Depot are loaded with approx. 7 tons and des-patched at the rate of one every 3 minutes.

ENTRY CLIMAX



***** * The only Fork Lift * * Trucks with all * the Features! Capacities 3,000, 4,000, 5,000

and 6,000 lbs. Three wheel suspension, with dual pneumatic tyres, gives perfect balance and a smooth ride on balance and a smooth ride on any surface. Lifts and lowers while turning and manoeuvres in a 10 ft, alley for right-angled stacking. Turning radius 70ins. Coventry Climax 4 cyl. petrol or diesel engines. Electric starting. Full range of special handling attachments.

COVENTRY CLIMAX Fork Lift Trucks have completely eliminated manhandling of drums at B.O.R.A.L. (Bitumen and Oil Refineries (Aust.) Ltd.), Bunnerong, N.S.W. At the drum storage, 4 empty 44-gal. drums are placed on each pallet. From then on, through all operations of filling, stacking, sorting, and loading on to outgoing trucks, the drums are not again lifted by hand. Potential output is 50,000 tons of bitumen per year. Present daily tally of 800 drums (160 tons) is entirely handled by only 4 Coventry Climax Fork Trucks.

SALES, SERVICE AND SPARE PARTS THROUGHOUT AUSTRALIA:

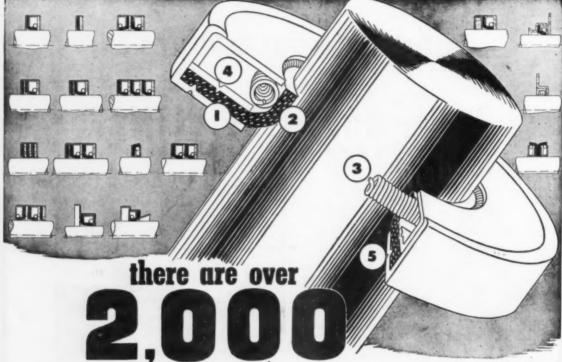
N.S.W. - Britstand Distributors Ltd., 56-64 Gardeners Rd., Mascot.

VIC. & TAS. Queen's Bridge Motor & Eng. Co. Pty. Ltd., 43 Queen's Bridge St., Sth. Melbourne.

S.A.—Waymouth
Motor Company Ltd.,
42 Waymouth St., AdeW.A.—Skipper Bailey
Motor Company Ltd.,
900 Hay St., Perth.

MANUFACTURED IN ENGLAND BY COVENTRY CLIMAX ENGINES LTD. OF COVENTRY

Australian Factory Representative : - A. J. ELLERKER, 62 Piet St., Sydney



AND TYPES OF SIZES THE

OIL

The Fla-Scal Oil and Grease Retainer is constructed on sound and proven engineering principles to standard pro-determined tolerances in over 2,000 sizes and types for every industrial application. Fla-Scal provides a perfect bearing seal, preventing leakage of the lubricant from the bearing and the passage of foreign matter into the bearing.

J. C. Ludowici & Son Lid. offer a free technical service on the selection and application of Fla-Scals to operate efficiently under all normal and adverse conditions.

Literature and Price List available without obligation. Joint Manufacturers: J. C. LUDOWICI & SON LTD., & A. FLAVELL PTY. LTD.

- The scaling member of the Fla-Scal is moulded under high pres-sure from Lutan leather specially tanned and treated for oil retainer requirements.
- The scaling lip of the leather is uniformly smooth and accurately finished, ensuring good scaling properties with low spring tension.
- The tension spring, having the capacity to retain its elasticity for almost an indefinite period. halls the leather sealing his against the shaft, preventing the escape of labricant and automatically adjusting the seal for wear.
- The leather seal is prevented from rotating in the casing by projections stamped into the metal case and washer which securely hold the leather in position.
- nensions of the seal, inside, and depth, are all care-lecked to conform to per-limits of accuracy.

WHOLESALE FACTORY SELLING AGENTS

117 YORK STREET, SYDNEY. BX 8841. 20-26 QUEEN'S BRIDGE STREET, STH. MELBOURNE, M 3101-3.





OTHER LUDOWICI LINES OF EQUIPMENT INCLUDE: Leather and Rubber Belting, Conveyor and Elevator Belting, Round Leather Belting, Testils Leathers, Belting Accessories, Leather Peckings, High-Speed Grinder Belts, V Belt Drives, Industrial Clutches, Plain Bearings, Anti-Prictions Bearings, Steel Shafting, Couplings, Shafting Hangers, Micriski Bearings, Steel Shafting, Couplings, Shafting Hangers, Micriski Bearings, Steel Shafting, Couplings, Shafting Hangers, Micriski Bearings, Steel Shafting, Couplings, Shafting Hangers, Huller Hangers, Composition Packings, Lutes Industrial Plastics, Industrial Gloves, Rubber Williams, Micriski Bearings, Steel Shafting, Couplings, Shafting Couplings, Shafting Couplings, Shafting Couplings, Shafting Couplings, Shafting Hangers, Shafting Couplings, Shafting Couplings, Shafting Hangers, Shafting Hangers, Shafting Couplings, Shafting Hangers, Shaft

INSTRUMENTS for INDUSTRY

All industries that have need for electrical indications and measurement can, in the main, find their requirements covered by the wide range of equipment manufactured by "University." In addition to those illustrated below, we also manufacture Pyrometric Equipment, Electronic Timers, Panel and Switchboard type meters, etc. Your enquiries are invited.



BONDING TESTER

A readily portable instrument for the quick, easy checking of the bonding of aircraft, machinery or any metal framework. Leads supplied up to 66 feet in length. Model D5.



MULTI-RANGE CURRENT TRANSFORMER

For increasing A.C. range of any suitable multimeter. Secondard Im.a. Switch on the instrument allows choice of following ranges: 2½, 5, 10, 25, 50, 100, 250, 500 m.a.; 1.2½,5 or 10 Amps A.C. Incorporates safety press button. Ideal for use with MVA/2 (see below).



AIRCRAFT MULTIMETER

Designed especially to facilitate checking of electrical instruments and equipment fitted in aircraft. Covers A.C. and D.C. volts, millivolts, milliamps, amperes, resistance, output millivolts, resistance decade. Used by R.A.A.F. and Civil Airways. Model D12.



MULTIMETER

A wide range A.C./D.C. Multimeter covering voltages to 1,000 volts, current to 10 amperes D.C., Resistance to 1 megohm, Output ranges from —10 db. to +45 db. Entirely self-contained. Model MVA/2.



LOW RANGE RESISTANCE TESTER

A readily portable pocket-sized instrument entirely self-contained. Ranges: 0-20 ohms, 0-500 and 0-5,000 ohms. Model EXT.



BLASTING CIRCUIT TESTER

Readily portable, small in size. For testing detonator circuits, either series or parallel. Approved by Department of Mines, N.S.W., for use in coal mines. Model E9.

UNIVERSITY ELECTRICAL INSTRUMENTS

Made in Australia by

UNIVERSITY GRAHAM INSTRUMENT COMPANY

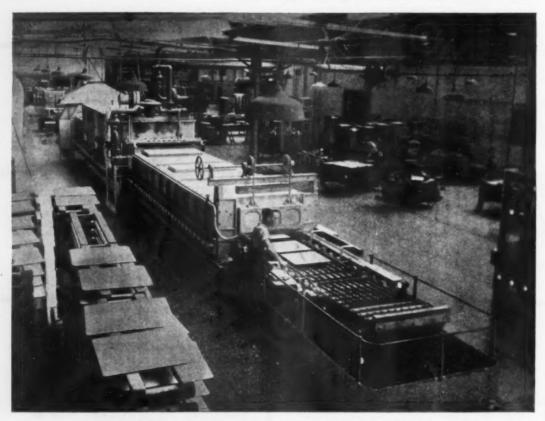
5 North York Street, Sydney

Telegrams "RAQUIP" SYDNEY

Telephone: BU 3169 (2 Lines)

THE AUSTRALASIAN MANUFACTURER [Page 8, June 3, 1950.]

HIGH PRODUCTION Continuous FURNACES



Illustrated is an example of the application of the Roller Hearth type furnace to vitreous enamelling.

This particular furnace is fitted with automatic charging, discharge and perrit return mechanism.

The

Designed and Manufactured by-

INCANDESCENT HEAT CO. LTD.



Perkin

(AUST.) PTY. LIMITED





ATLANTIC UNION OIL COMPANY LTD.

75 YEARS OF EXPERIENCE

IN GENERAL AND STRUCTURAL ENGINEERING



Full Type Heavy Dredging Grab made for Maritime



Hydraulically-operated Plywood Press for use in timber mills in Queensland.





Steam-driven Pile Hammers.



36in. dia. High Pressure Split Body, Parallel Face, Sluica Valve made for M.W.S. & D. Board, Sydney.



Shaft- or Well-sinking Pumps, electrically driven, for use in any sort of shaft. Made for all capacities.



Sugar Cane Punts built fer North Queensland sugar companies.



Standard 300 sq. ft. "Winard" Patent Rotary Drum Filter. In operation in sugar mills in Qld. and N.S.W. Similar units designed for fruit pulp, starch and metallurgical applications.

MORISON & BEARBY LTD.

ENGINEERS, NEWCASTLE

Cable Address: "MORISON," CARRINGTON, N.S.W. Code: BENTLEY'S. Telephone: M 2247 (3 lines)



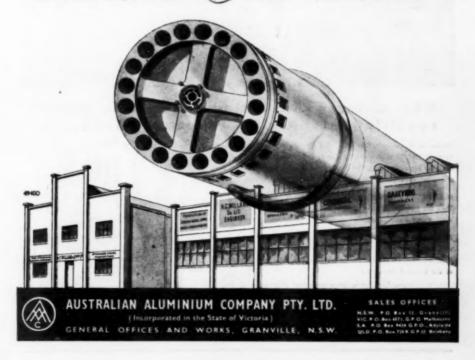
From the barret of a pen on pencil to a bridge or railway coach, the adaptability of aluminium is unlimited.

There appears to be no field of manufacturing endeavour in which aluminium cannot solve the problem of material in some way or other.

One of the latest examples of aluminium's adapt-

ability is the vast Oxide Dyer, approximately 35 ft. long, built by A. C. Willard Pty. Ltd., 451 King 5: St. Peters, N.S.W., the first of its kind produced in Australia.

Can Altiminium assist you? Remember that our Sales Offices are ready and willing to give advice and details on all production problems.





Why a large Australian Automobile Plant specified MAXIMUM Speed Reducers

Hidden under the floor, this MAXIMUM Speed Reducer drives the conveyor helt of the main assembly line in a large automobile plant. This company has discovered—like hundreds of others—that MAXIMUM Units are great space-savers as well as highly efficient speed reducers.

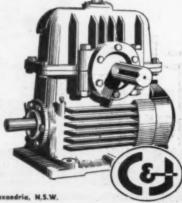
Maximum WORM-DRIVE speed reduction units have many advantages.

They are suited to a wide range of speed reductions, with horizontal or vertical output shafts, and give smooth, quiet transmission of power.

Furthermore—these installations ensure a considerable reduction in maintenance costs. The units need little attention other than inbrication. Your transmission problem will always receive the immediate attention of our technical department.



COOTE & JORGENSEN LTD., Gear Specialists, Botany Road, Alexandria, N.S.W.





Offices in all States of the Commonwealth

Comfortable heating for an entire area without hot spots. Designed to work efficiently and economically, the Rowco CONVECTOR heats and circulates the air without the aid of a fan.



Model "N"-Movable heater with Bray Finned elements loading 2000 W.



ROWCO MODEL "A" Floor mounting type for small areas loading 500 W or 1000 W.

ROWCO CONVECTOR HEATERS



Model "W"- Surface type to be mounted on walls loading 1000 W.



IF IT'S

IT'S RIGHT





Model "B" - Flush wall type with Finned elements loading 500 W, 1000 W or 1500 W.

MELBOURNE Flinders Court, City off 15 Elizabeth Street

SYDNEY 136 Elizabeth Street

ADELAIDE 121:123 Pinje Street Adelaide

BRISBANE 95 Eagle Street Brisbane

The Australasian MANUFACTURER

Established 1916

35th Year of Service to Industry

Telephones: Sydney, BU 3493, BU 3494. Melbourne, FJ 3256.

Postal Address: Box 1687, G.P.O., Sydney, and Box 4525, G.P.O., Melbourne.

Australia's National Manufacturers' Newspaper circulating in all States, New Zealand and Overseas. A weekly newspaper devoted to industrial efficiency and the manufacturing progress of Australia. Subscriptions within Australia and New Zealand (including Annual Number), £1/10/-; Great Britain and Possessions, £2; Foreign, £2/10/-. All subscriptions payable in advance.

PAGE FIFTEEN JUNE 3, 1950.

A United Industrial Australia

Plea for its Attainment by President of Victorian Chamber of Manufactures

"Unity is the most essential need in Australia to-day, because without it, production cannot be increased, there would be no peace in industry, and neither national nor industrial development can take place. Whether we be employers or employees, the goal towards which we are striving is the same—national prosperity and development, our individual wellbeing, and a rising standard of living—and we cannot hope to attain this by pulling in different ways. Australian industry consists of two partners—management and labour—each carrying its own particular functions and responsibilities."—Mr. E. F. Atkins, in his Presidential Address at the recent Annual Meeting of the Victorian Chamber of Manufactures.

IN that brief statement, Mr. Atkins puts his thumb on the pulse of Australia, diagnoses her major weakness, and indicates the steps she must take in order to attain, and maintain, increasing strength, general wellbeing, and the spirit of buoyancy which is the mainspring of endeavour and enterprise.

In proceeding to discuss the question of employer-employee relationships, he expressed the opinion that over the past few months comments to imply that, generally speaking, such relations in Australian industry are bad. "This, I venture to say," he continued, "is not true. Fundamentally, the question of employer-employee relations is one of 'human relations', and inquiry through a cross-section of Australian industry would reveal that in a vast majority of manufacturing establishments these are good. The personal element, of course, varies with the size of the business, but whether it be large or small, a very generally recognised axion is that the happy contented worker is the most successful and the most productive worker. The man who feels that the quantity and value of his work will be fairly reflected in his pay envelope is going to feel also that he has a stake in the business and the welfare of that business will become very much his personal concern."

Mr. Atkins then went on to detail the action to be taken by management for the fostering of harmonious industrial relations—stressing the duty of every employer seeing to it that his employees work under the best possible conditions and that his plant is as modern and efficient as possible. "Methods may differ," he continued, "but the aim is invariably easy contact between employees and management, rapid correction of all just grievances, and the establishment of that feeling of trust and confidence on both sides which is essential in any prosperous business."

It is good that one of Industry's foremost leaders should thus give the lie to the all-too-frequent suggestion that there exists between management and workers a sort of open hostility, that there has arisen between them an impenetrable wall, a wall which shuts out the light of reason and of comprourise. The tragedy is that in certain quarters there is the most earnest desire that such a false impression should wax and diourish. It expedient, therefore, that both industrialists and unionists should squash the fallacy with all the seal that in them lies. The spirit of "gettogether" is as strong in the industrial world as ever it has been in Australia's history and her patriotic sons are determined that no evil influence shall be permitted to quench it.

Turning to the vitally significant question of utiliising the Australian labour force to the best possible advantage, Mr. Atkins, while admitting that we need, and must have, an expanding industry, that we need, and must have, new capital investments, stresses the urgency of expanding in the right directions and of ensuring that whatever new capital is brought into the country shall be used in the best interests of the nation as a whole. "Some industries," he declares, "are already well catered for, and their output is more than uqual to present requirements. Others, including some very essential commodities, are in short production to such an extent that we are importing essential goods into Australia's vulnetable be made here. It is obvious that production of basic materials is lagging, resulting in industrial unbalance. In view of Australia's vulnetable geographical position, it is suggested that emphasis be laid on those industries which are necessary for the defence of our country and which acquire first importance from a national standpoint in time of war." That is a wise outlook, an outlook shared by an overwhelming majority of the men who to-day are building up in this Commonwealth manufacturing

[Page 16, June 3, 1950.]

industries which are fountains of prosperity in peace and bastions of defence in war.

A powerful plea for the fostering of the spirit of free enterprise brought to a close Mr. Atkins' able survey of the present-day industrial situation. "Let us always remember," he said, "that no economic system since the world began has ever yielded the opportunities and rewards which are obtainable under that knownn to us as 'free enterprise'

-the spirit which made England great; the spirit upon which was founded and built the mighty United States of America; and the system which has enabled Australia to grow to her present strength—the system which is based upon the freedom of the individual."

That is the liberty for which down the centuries our forefathers fought the winning fight, a fight which has earned for the generations that have come after the right to be masters of their Fate.

Pithy Jottings of Industry and Industrialists

FORD'S 25th ANNIVERSARY.

October 1st. will mark the 25th. anniversary of the comof operations of the Ford Motor Co. Australia Ltd. at Geelong, Victoria, For on that date in 1925 the assembly of motor vehicles was begun in temporary premises pending the erection of the vast modern plant on the North Shore site, hich site was acquired from the Geelong Harbour Trust. Remarkable process has been made during the quarter century of operations, the industry to-day ranking as one of the foremost within the Commonwealth.

"SMALLER BUSINESSES" CONFERENCE.

The usual high measure of success attended the recent conference "The Management Problems of Smaller Businesses" held in Melbourne under the auspices of the Institute of Industrial Management. The gathering was under the chairmanship of Mr. A. H. Blamey, manship of Mr. A. H. Hamey, secretary, Griffiths Sweets Pty. Ltd., and was opened by the Institute's president, Mr. Malcolm Moore. Keen interest was evinced in the addresses of the three speakers: F. M. Witishire, managing director, Wiltshire File Co. Pty. Ltd., who discussed "Production Problems in Smaller Businesses". Mr. Justin Power, management Mr. Justin Power, management of the Power management of the Problems of the Power management of the Problems of the Power management of nesses": Mr. Justin Power, man-aging director, A. C. Nielson Ltd., Delaware, U.S.A.; who spoke on "The Marketing Channels Open to the Small Businessman": and Mr. W. Kirkhope, partner, W. Kirkhope and Company, who dealt with "Finding Finance for Expansion of the Small Business". Special importance attached to the fact that a Panel to answer questions had been formed, comprising the three speakers and executives experi-enced in banking, marketing, and in the engineering, clothing, and furniture industries.

MORE OVERSEAS SCIENTISTS FOR AUSTRALIA.

Mr. Casey, Minister for National Development. announced recently that four additional highly skilled scientists and technicians are to arrive in this country from Ger-many. They are: Dr. Keunecke, geophysical and geological surveys. Kumetat, dairy research, who will work with the Commonwealth Scientific and Industrial Research Organisation. Dr. Zimmermann, micro-analysis of organic com-

hemistry to be developed in Australia. Mr. Hardenbicker, a technician in the manufacture of den-

This brings the total number of German experts in Australia to seventy-three. Their wide skill and knowledge are helping greatly the development of many branches of Australian industry. . .

INDUSTRIAL DESIGN AND DISPLAY.

The Industrial Styling Company, industrial designers, of 66 Pitt Street, Sydney, is now incorporated in a new company known as Beauvais Associates. Mr. Peter D. Beauvais, a partner in both conhas been registered for the purpo of sub-dividing their two main activities. The role of the new company, therefore, will be industrial product design and that of the Inproduct design and that of the In-dustrial Styling Company the manufacture of "Beavais" products and the production of "Beavais" store modernisation schemes, ex-hibitions, static and motion displays, etcetra.

COUNCILS IN INDUSTRY.

In a paper by Mr. A. A. Calwell, Labour M.H.R., read at the School for Executives at Geelong, he advocated industrial councils representing employers and employees to solve industrial problems

Mr. Calwell said the Federal Constitution must be altered to enable the councils to be set up with legislative power to: Regulate wages and conditions in

industry;

Determine what was a fair profit for each branch of industry; Stimulate production so that legitimate profits could be made with lower prices;

Encourage the investment of pri-

MANUFACTURER" INDEX

MANUTAL UNER INDEA
The lodes covering all issues of "The
Australasian Manufacturer" from April 1,
1949, to March 31, 1950, is just off the
press it has been compiled for the use
of libraries and for use industrial underfakings as regularly keep the journal of
lie. It constributes a speedy and accurate
means of locating articles which have
appeared as Editorials, in "Around and
About the Factory," in "Industrial Equipment News," in "After Expiness House,
and in the general section. Will obscribers requiring cobins phases make
each applicability of the properties of the
particled immediately on request.

vate capital in ways most likely to benefit the whole community.

TRADE WITH AFRICA.

Mr. C. R. B. Patterson, the Australian Trade Commissioner for and East Africa, said the other day, that there was a market for most types of Australian goods in East African territories.

The opportunities, he said, existed particularly in Kenya, Tangany-ika, Zanzibar, North and South Rhodesia, Nyassaland and the Belgian Congo.

With direct shipping now assured and with the gradual relaxation of import licensing control, it was important to develop the markets

ALUMINIUM PRODUCTION IN NEW GUINEA?

With the object of prospecting and developing the resources of New Guinea, the Commonwealth Government and the British Alum-inium Co. Ltd., of London, will form a new company.

It will locate and develop largescale hydro-electric schemes in industry, particularly aluminium production.

It will also search for bauxite

and other minerals.

The Minister for National Development, Mr. R. G. Casey, who announced the project said the com-pany, to be known as the New Guinea Resources Prospecting Company Ltd., would be registered in

ne Territory of Papua.

Its capital would be f100,000, in the Commonwealth holding would be 51 per cent., and the British Aluminium Company and Assoclates 49 per cent.

PRODUCTION STATISTICS.

The production figures for the month of March show some small improvement over the general field. The following selected items are of interest, the corresponding production figure for March last year being shown in parenthesis: Black coal-1,441,000 tons (1,382,-

brown coal-662,000 tons (607,000); pig iron—89,400 tons (93,300); ingot steel (N.S.W.) tons (93,900); ingot steel (N.S.W.)— 110,500 tons (103,200); Zinc—7,440 (6,680); refrigerators-15,140 (13,610); motor hodies sedans 2,978 (2,517); motor bodies-utilities-1,255 (514); electric motors-24,676 (20,166); boots and shoes— 1,426,000 pairs (1,421,000); biscuits -5,810 tons (4,770); butter-15,100 tons (15,400); meat-77,900 tons (74 500): cheese-2 820 tone (2 170): newsprint-2,600 tons (2,480).

AGRICULTURAL MACHINERY FOR SOUTH AMERICA.

Mr. E. P. Lough, sales manager of Howard Auto Cultivators Ltd., has left by air for South America. He is investigating the market for Australian agricultural machinery.

DAVIES COOP APPOINTMENT.

Mr. T. A. W. Furphy has been appointed Managing Director of Davies Coop & Co. Ltd. This promotion was announced at a dinner given by the Directors to senior executives and trade associates to company's silver annimark the versary. Mr. Frank Coop, who is chairman and managing director, relinquish the managing directorship but retain the chair.

RADIO AND TELEPHONE MANUFACTURERS' PRESIDENT.

Mr. J. Wilson has been appointed president of the Federal Council of the Electrical Radio and Telephone Manufacturers of Australia.

TELEPHONE EQUIPMENT PRODUCTION.

T. S. Skillman and Co. Pty. Ltd., of Sydney, announce that under arrangements with Communication Engineering Pty. Ltd. they have undertaken the production of longline telephone equipment for sale to that company. Under the plan, the Skillman organisation is to occupy premises at Cammaray, New South Wales, where previously manufacturing was carried on by Communication Engineering Pty. Ltd. on their own account. ported that Skillman and Co. Pty. Ltd. expect to be in a position to supply, not only Commonwealth Engineering Pty. Ltd. with its requirements for Australia and Zealand trade, but also to build up

TRAINEE TRAVELLER WANTED

WANIEL
A long-established Sydnsy Company
Manufacturers' Representatives
Young man, not older than 28,
to train for
local and interstate Travelling.
Mechanical aptitude or knowledge
tool trade important.
Salary according to age and qualifications, but not exceeding £300
first year. first year. Apply: BOX 1634, G.P.O., SYDNEY.

a profitable export business in sterling and dollar areas and on the Continent

TARIFF BOARD INQUIRIES.

The Minister for Trade and Customs has referred three new matters to the Tariff Board for inquiry and report in accordance with the Tariff Board Act, 1921-1947.

- (1) Spokeshaves.—What rates of duty should be imposed on spokeshaves which are now charged with duty under Tariff Items 219(B), 303(A) or 449(A)
- (2) Mounted Projection Lenses.—
 What rates of duty should be imposed on mounted projection lenses classifiable under Tariff Items 320(B) (1), 320(B) (2) and 449(A) (1).
- (3) Elastic.—What rates of duty should be imposed on elastic, one inch and over in width or diameter up to and including two inches in width or diameter.

These inquiries will form the subjects of public inquiries at a later date.

IRON AND STEEL OUTPUT.

Owing to the Easter holidays, steel production by the Broken Hill Pty, Co. Ltd., and Australian Iron and Steel Ltd., at Port Kembla, was reduced in April.

Comparative figures with March output are:-

BROKEN HILL PTY.

TA GLAS CORRESSES		
	Mar.	Apr.
Pig iron, tons	42,136	39,384
Ingot steel, tons	60,296	55,304
Blooms, tons	59,298	51,178
28in. mill, tons	47,918	37,436
Merchant bar, tons	27,029	21,050
Rod Mill, tons	8,779	7.516
Whyalla		
Pig fron, tons	9.732	Closed

AUSTRALIAN IRO	N & ST	EEL
Pig iron, tons	36,751	45,491
Ingot steel, tons	44,655	43,431
Blooms, tons	42,383	39,692
36in. mill, tons	40,585	37,732
10-13in. mill, tons	12,954	8,772
Merchant bar, tons	9,895	8,350

BRUCK MILL DIRECTORS.

Following on the departure of Mr. L. S. Lee who has returned to Canada to rejoin Bruck Mills Ltd., of Montreal, Mr. Arthur M. Flanders and Mr. Eric F. Pope, have been appointed joint Managing Directors of Bruck Mills Aust. Ltd.

INDUSTRIALIST GOES ABROAD.

Mr. R. Siddons, Managing Director and Chairman of Siddons Drop Forgings Ltd., has left Australia on a business trip to America and England.

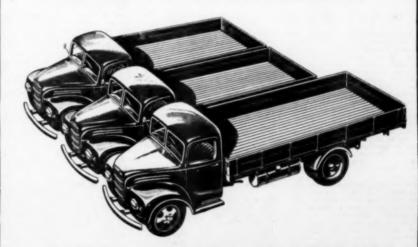
APPOINTED DIRECTOR-

Mr. E. Marriott has been appointed a Director of Malleys Ltd., of Sydney.

Thames

The New English Ford V8 Truck

Maximum Gross Vehicle Weights: 8624 lbs. (nominal 30 cwt.), 9800 lbs. (nominal 2 ton) and 16,500 lbs. (nominal 4½ ton.)



3 OUTSTANDING THAMES MODELS

to give greater service at lower Ton-mile cost

Thames brings you all you have wanted in an English truck.
The famous Ford Y8 engine for power and economy, Semiforward control for compact overall length yet with more

room for the load. Thames has a roomy, comfortable cab. It is a strong, sturdy truck that will reduce total ton-mile costs . . . and it is backed by Ford Service facilities.



FAMOUS FORD VB ENGINE For both long and short hanlages the polling power and absolute dependability of the Ford VB engine have been proved by truck



EASY TO HANDLE.
Compact overall length and shortuning circle make Thomas easy to hundle on natrow roads, charp corners; and to monoscure into loading and unloading positions.



COOL, COMPORTABLE CAB
The Themes off-steel cab hacomparable setting and is well equipped. Driver's windscrean opens and can be edisted for the

desired degree of



EXTRA LOAD SPACE
The 128" W. B. Thomas carrin
on 11" x 7" body, the 157" W. B
14" 6" x 7" body. Compac
overall length and forward piece
overall length and forward piece

Your local Ford Distributor or Dealer will gladly give you full details.

FORD MOTOR COMPANY OF AUSTRALIA PTY. LTD. (INC. IN VIC.) HOMEBUSH, N.S.W.

the addictal representative for each Blate makes regular manufactures and the regular manufactures are some particular phase of pushings given publicity, communicate immediately with the Editor, and he will drange for a representative to call.



A digest of new factory and plant construction, additions, alterations and improvements, and operating news of Australian industry.

Aerodynamic Braking

The Accurate Testing of Internal Combustion Engines

The enormously increased use of the internal combustion engine in every field of human activity has given greater range to problems which were once considered exclusive to a limited circle of manufacturers and users. Most important among these problems is the control of quality and efficiency of engines by means of certain tests and instruments giving not only a measurement of efficiency but also a trying-out of the efficacy of all the technical devices designed to further progressive improvement in the construction and operation of engines.

The difficulties encountered in replacing worn engines with new ones has contributed to the stimulation of the natural tendency to keep an engine in such a condition as will guarantee the maximum efficiency. It is, therefore, necessary for motor repair shops to be in a position not only to carry out faultiess repairs, but also to afford accurate inspections and careful power and efficiency tests. In such work, of course, no means can be compared for accuracy and dependability with the indications of a suitable instrument.

Highly sensitive to the slightest variations of engine anged both

Highly sensitive to the slightest variations of engine speed, both occasional and periodical, and indicating accurately any variation in the running due to the least faults in fuel feed, ignition balance, etc., the "M60" Aerodynamometer Brake, illustrated, has been developed overreas and is now generally available.

The ease of control of this apparatus and the rapidity with which the resistance may be varied allow of subjecting engines to the most searching tests, including sudden load variations ("pickup" tests).

The "M" brake consists essentiated the subjection of the sub

The "M" brake consists essentially of a special aerodynamic rotor with adjustable blades, coupled to a special torque meter; the rotor generates the resistance and varies it through the axial adjustment of the blades; the torque meter shows the degree of resistance. An indicator shows the extent of the values revealed by the torque meter, the number of revs. per minute and the output in H.P.

The brake is easily coupled to the engine to be tested by the interposition of a flexible coupling or a cardan shaft. Thus is avoided the need for perfect alignment, which exists when a rigid coupling between brake and engine is used, and the bearings of both brake and engine are relleved of abnormal stresses.

The brake can test engines of from 5 to 160 h.p. at 2,000 r.p.m. and from 5 to 300 h.p. at 5,000 r.p.m. The resistance of the aerodynamic rotor can be varied by altering the size and number of the blades and by adjusting the biades so that they offer a greater or a lesser surface to the air, by means of the appropriate levers.



"Meo" brake with boss uncovered.

The rotor blades can be feathered either when the dynamometer is at rest or when it is running at any speed, thus making it possible to quickly vary the load on the engine at pleasure.

An instantaneous precision revolution counter produces the angular displacement of a pointer which moves over a dial graduated in r.p.m. A cursor, actuated by a mechanism connected with the torque meter. Is provided with a pointer which moves along a fixed scale graduated in mKg. or ft.lbs. The cursor scale is graduated in H.P.; the H.P. output is read off from the cursor scale at the point where the upper edge of the pointer of the rev. counter intersects the lower line of the graduations of the cursor scale.

The instrument is thus com-

posed of a rev. counter, a torque meter and an ergometer in combination.

All the passive resistances, with the exception of that of the two ball bearings, are aggregated to the air resistance of the rotor blades and therefore are registered by the indicator. The resistance of the two ball bearings is taken into consideration in the graduation of the scales of torque and power output. The calibration of the instruments and of the brake can, however, be checked at any time by replacing one of the rotor blades by a special rod, the end of which is loaded with weights.

Further particulars of the M60 Aerodynamometer Brake may be obtained from the Australian agents, Acta Pty. Ltd., 13-15 O'Connell Street, Sydney.

Sanding Convex Surfaces

Flexibility of Pneumatic Drums

Woodworkers for a long time have experienced a certain amount of difficulty in eliminating "waves" or scratch marks from the finished work when sanding is carried out. In addition, many articles have awkward curves and angles which must be sanded along the grain of the wood, requiring a multiplicity of drum sanding operations frequently necessitating extensive hand finishing.

To overcome the need for these time-wasting operations, an ingenious idea has been introduced to the trade consisting basically of a range of Pneumatic Sanding Drums for use with the Pacera Drum Sanding Machine or with the Pacera Flexible Shaft Pneumatic Drum Sander.

These drums are made of rubber, air-inflated so as to permit just the right amount of resiliency to hug a convex or irregular surface, and to counter the humatendency to exert uneven pressure, avoid the "waving" tendency of the solid type of drum.

Also capable of being used on metal, plastic, or composition materials with complete success, the Pacera Sander eliminates all hand sanding of wood prior to final finish, and, compared with hand methods, produces a more perfect surface in a fraction of the time.

Drums are available in three particles of the produce of

Drums are available in three sizes—four, three and two and a half inches in diameter, all eight inches wide. The largest size is for fist surfaces, while the two smaller sizes suit the different arcs and curves of convex and concave surfaces.

Endless abrasive belts are supplied for each drum while a new method of scaling (for which patents are pending) ensures a positive airtight seal without sealing compound. This permits immediate replacement of a Ruber Drum at any time. By using suitable abrasives the drums are ideally suited for the removal of Flash and Burrs from Metal castings, and for polishing and finishing all types of metalwork.

In use, the rubber drum—which is of strong moulded construction—is covered by a canvas sleeve for extra protection and over this is placed the appropriate abrasive band. A vaive is fitted in the endplate, and the drum is inflated by means of a car or motor-cycle tyre pump to a pressure most suitable to the contour of the work being finished.

Although designed especially to take Pacera Pneumatic Sanding and Abrasive Drums, the Pacera Drum Sanding and Finishing Machine will also take solid drums within the spindle capacity of the machine. Of sturdy construction, the 1½in. dis. spindle runs in heavy duty Ball Races with the option of two speeds—1500 r.p.m. and 900 r.p.m.

The drive is dust-proof, being enclosed in the body of the machine, and is taken from a 1½ h.p. motor through "V" Fulleys. An outstanding feature is the specially designed ducting for dust removal. The Ducting Hoods can be rotated round the Drum into top or bottom positions giving effective dust removal through suction slots, whether the operator is working on the top or froat face of the drum.

(Turn to page 20.)

CONTRACTORS TO AUSTRALIAN AND NEW ZEALAND GOVERNMENTS

DIAMONDS

In buying JULES JORIS Diamond tools, you are obtaining the knowledge and experience of three generations of Diamond experts

Diamond & Boart Products (Australia) Pty. Ltd. in conjunction with JULES JORIS head office, 248-247 Pitt Street, Sydney, the largest importers of diamonds in Australia, offer you a full range of :

PRECISION MADE

- DIAMOND THREADGRINDING TOOLS
- DIAMOND LATHE TOOLS
- DIAMOND BORING TOOLS
- DIAMOND HARDNESS TESTERS
- DIAMOND RADIUS DRESSERS
- DIAMOND TREPANNING TOOLS
- DIAMOND EMERY WHEEL DRESSERS
- DIAMOND BAKELITE IMPREGNATED AND METAL HONES
- DIAMOND BAKELITE AND METAL LAPPING WHEELS
- DIAMOND WIRE DRAWING DIES
- DIAMOND DUST
- DIAMOND GLASS CUTTERS AND OPTICAL DRILLS

SPECIAL DIAMOND TOOLS MADE TO YOUR REQUIREMENTS

For expert advice on Diamond matters and service, consult:

DIAMOND & BOART PRODUCTS (AUSTRALIA) PTY. LTD.

14-16 Patrametta Road, STANMORE, N.S.W. Phone: LA 3842.

DIAMOND & BOART PRODUCTS (VICTORIA) PTY. LTD.

405 Collins Street, MELBOURNE, VICTORIA. 'Phone: MU 3956.

Agents -- S.A.: Mr. Max Chilton, Baptist Buildings, Flinders Street, ADEL AIDE. 'Phone: Central 5116. W.A.: Western Machinery Co. Pty. Ltd., 494 Murray Street, PERTH. 'Phone: BA 2495.







COMPRESSOR PLATES

Made to any Specification

PNEUMATIC TOOL & ENGINEERING CO. PTY. LTD.

114-116 Regent St., REDFERN, N.S.W.
"Phone: MX 1883
Telegraphic Address: "NAPTOOL." 3ydner.

Precision Tool and Die Makers METAL STAMPERS

Manufacturers of BOOMAROO STEEL TOYS

ARTLAY MANUFACTURING COMPANY
BUTT STREET, SURRY HILLS, N.S.W.

QLD. AGENT: Jones & Joseph Prv. Ltd. STH. AUST. and WEST AUST.: Evans & Inglis. VIC and TAS. AGENTS: Consolidated Merchandising Co. (Continued from page 18.) Shutters are provided over these

Shutters are provided over these slots, two for each hood, which can be opened at the position of application of the work, either at the top or bottom, or both. The remaining shutters being left closed, thus obtain the maximum suction for removal of dust. This is equally effective for spindles running in either direction and the drums may be replaced without alteration to the position of the ducting or hoods.

The Pacera Flexible Shaft Pneumatic Drum Sander is a particularly useful instrument for giving a mirror finish to planed wood prior to final finish. The Pacera Pneumatic Drum, when mounted on the special bail bearing hand-pieces, is light, portable, simply controlled, and capable of operation by completely unskilled labour.

Full particulars are available from C. Bell & Son, 223 Queen Street, Melbourne,

60 Years of Service to Industry

By Watson Victor Ltd. of Australia and New Zealand

During the past sixty years no individual manufacturing organisation has made a more important contribution to the manufacturing progress of Australia, to the modernity of her hospitals and her dental clinics, and the efficiency of the laboratories of her universities and her industrial undertakings than the organisation of Watson Victor Ltd., which operates some afteen branches throughout the Commonwealth and the Sister Dominion of New Zealand.

Indeed, there is scarcely a department of the national life in which Watson-Victor equipment does not play a more or less vital role. Throughout the field of industry, for example, its services are legion—its apparatus testing the raw materials that enter into production and the light alloy castings that figure in many of the most complex as well as the most delicate of mechanisms; telescopes; dust counters; contour projectors; dust counters; contour projectors; spectrographs; and absorptiometers, all of whose use by the expert makes possible scientific production as we know it in 1950.

In 1888, the enterprise had its first beginnings. Small, it is true, but, at the same time, potentially great. Down the years, these potentialities have materialised consistently. This is evident from the fact that throughout the period of its growth it has been a leading spirit in the design and production of all types of X-ray apparatus, from the small relatively simple types of the earlier period up to the highly complex mechanisms which are to be found to-day wherever reassarch workers are grappling with the problems of present-day industry and of present-day industry and of present-day medical practice.

The "Wat-Vie" IX-140 industrial X-ray unit, for instance, has been designed specially for use in the lighter industries. It has a range of 30 to 140 kv.p., being particularly suited for the examination of light alloy castings. The light tube head is designed in such manner as to make possible the directing of the beam at any required angle. The unit, moreover, may be mounted on a mobile trolley for the examination of welding in the field or in the workshop.

An important newcomer is the "Holophot," which has been designed to take care of all classes of
photomicrographic work. It incorporates a quarter-plate reflex
camera; it may be used visually and
photomicrographically; it provides
facilities for transmitted and reflected illumination, and can be
adapted for micro-photography.
The magnification range is from X2
to X1500.

Another interesting "Wat-Vic" unit is in almost universal use in their large quarta-spectrograph. Its importance rests on the fact that spectrographic analysis constitutes a certain and speedy method of qualitative and quantitative metal-lurgical analysis. It has been found, for example, that one photograph is usually sufficient to make possible the detection and the permanent recording of all the metallic constituents in a sample, however, small the sample may be. Indeed, routine chemical analysis demands a spectrograph.

Ranking equally important with the wide range of mechanisms designed and manufactured is the scientific-industrial service regularly made available by Watson-Victor experts, a service whose every detail conforms with the latest scientific-industrial practice in the leading industrial nations abroad.

Timken Roller Bearings

Made in England

Some potential users of Timken tapered roller bearings believe that such bearings are made only in the U.S.A. This is not the case. A full range of Timken roller bearings is manufactured in England. This knowledge is important to users directly concerned with saving dollars and buying only in a sterling area.

British Timken not only manufacture and market a full range of bearings in England, but they are constantly expanding this range. The factories at Birmingham and Duston are completely equipped and manned to perform all the operations necessary to produce such a vast range of



sizes from the largest back-up roller bearings for steel mills down through the railway axie box sizes to the smallest automotive type. Birmingham, too, can competently handle the manufacture of railway axie boxes and cannon boxes.

These factories are always willing to tool up for the production of new sizes to include in their

range. The only time that they do buy from their American associates is when the delay and expense involved does not merit this tooling up for a new job Such occasions are becoming less and less frequent.

such occasions are becoming less and less frequent. In support of this statement British Timken offer these facts: 1. The yearly output of tapered roller bearings by the British Timken factories at Birmingham and Duston exceeds 7 million bearings. This figure is increasing with the extension of equipment.

ment.

2. The total number of people employed in England by British Timken is 3,500. This figure is also increasing.

The Bearing Service Company of Australia Limited, agents in Australia for British Timken, can make available free literature covering every aspect of British Timken manufacture. They will also be pleased to discuss with engineers and designers the application of tapered roller bearings in their particular products. Such a discussion carries no obligations. British Timken will cooperate with them in this service.



G. R. GAYFER & CO. PTY. LTD.

52 PITT STREET, SYDNEY, N.S.W.

TELEPHONE: BU 1082



YOU WANT TO KNOW . . . and the editors will gladly tell you . . . more about the inventions, materials, and processes mentioned on this page. Write to Box 1687, G.P.O., SYDNEY, enclosing a stamped, self-addressed envelope.

forward

Screen-Printing Machine Is Compact, Semi-Automatic

A new, compact, semi-automatic screen-printing machine which allows for hand-printing and allows for hand-printing and which is operated by one man is now available.

The machine is operated by man who actually does the print-ing by hand. All other move-ments are fully automatic. The nachine requires a space of only 7 yd. x 7 yd. The printing is slone wet-on-wet without skipping

Screens are positioned hydraulically when the operator pushes a lever. The actual squeegee operation is performed by hand, but all other movements of screens, and fabric, etc., are pushbutton controlled.

Because of the special construction of the double-bladed squee-gee, an unskilled man can print as well as a skilled operator. The cost of production per yard, com-

A new photo-electric press guard has been recently devel-oped. This equipment is equally suitable for the protection clutch trip mechanism. The equipment is so interlocked

The system uses a "curtain" or "berrier" of light instead of a beam or beams. Consequently, there are no "blind spots" there are no "blind a inadvertently insert his hands. The thickness of the work, however, is not sufficient to operate the guard system. On the right hand end of the machine, well clear from the operator, is a pil-lar carrying a projector A incorporating several light sources shining through special diffusing lenses. The number of lenses varies according to the depth of

outer end of the machine is the photo-electric cell receiver B containing condensing lenses which concentrate the light barrier from

Set-up time is low; and if not all screen magazines are in use, the screens for producing a different pattern can be put into position for making a change in patterns while the previous pattern is still being printed. [2468].



down by hydraulic means push-

button-controlled by the operator. The cycle of the machine is such that no time or motion is lost.

Screens move in and out over the fabric as the fabric is moved

impressions.

between

that in case of failure the ma-chine is automatically stopped. In addition, a clearly visible red light provides constant warning when the machine is "alive" and capable of operation through appropriate foot control.

curtain required to cover the opening of the tools, with a large safety margin.

In a similar position at the

Photo-Electric Press Guard the projector on to a number of photo-electric cells. The aperpnoto-electric cells. The aper-tures of the cells are so placed in relation to the focal length of the lenses that only light from the projector can reach the cells.

This design prevents any varia-tions in sensitivity likely to occur from changes in shop lighting, or from variations in daylight conditions.



Photo-electric press guard shown fitted to a clearing press (left) is controlled by means of projector A, receiver B and clutch-control mechanism C.

The receiver is connected to a control unit incorporating one or more relays which are energized when the light barrier is uninter-rupted: in this condition, the machine will operate in the normal manner by pressure on the pedal or any other standard type of control fitted. However, should



Compact screen-printing machine occupies area 21 x 21 ft. Capacity of the magazine is 16 screens. Fabric is carried from roller, across printing table, beneath the printing table, and then to the dryer at the left.

because of the exact registry of the stencils. Once screens are set up in register, they will remain that way, throughout the printing process. It is possible to print blotches, stripes, and fine-line designs in any length desired without bleeding, spits, or smearing. No fabric back grey is used-printing is done on an endless rubber blanket which is is used—printing is done on an endiese rubber blanket which is washed as it passes underneath the machine. Fabric is held to the rubber blanket by a special adhesive which is coated on the blanket just before it passes under the roll of fabric.

pared to table printing, is said to be extremely low. Designs up to 59 x 59 in. can be printed.

After printing, the fabric is carried automatically beneath the machine to a dry box in the rear machine to a dry box in the rear of the machine. The machine is said to be suited for print-ing vat colours and discharges since the fabric is bone-dried in the dry box shortly after being machine printed

The machine has capacity for 16 screens, and up to 16 colours can be printed. The screens move in and out and up and the operator interrupt the beam by moving part of his body towards the danger area, the relays are de-energized and it is impossible to operate the machine even if the controls are depressed. In a similar manner, the machine is instantly rendered inoperative should the light barrier be broken whilst the press is actually in operation. This feature, however, does not apply in the case of presses which are so designed that they must complete their operation cycle once it has started.

The design of the clutch mechanism varies according to the make and type of press. but in the particular example, illustrated, it has been possible to enclose the equipment in a small housing C. When the machine is not in use, the guard system is disconnected by the main switch controlling the press motor: the red warning the press motor: the red warning light is then extinguished, to show that the machine and guard are out of action. [2467].

Midget Sized Paper Capacitor is Self-Healing

These three basic types of small paper capacitors are from to 1/3 the size and weight of conventional paper and foil designs, and have a unique "self-healing" ability.

Both the reduction in size and the "self-healing" effect result from the development of a practical method of continuously



Metallized paper capacitors feature small size, lightweight, and a unique effect.

coating capacitor paper with a thin conducting film of metal about four millionths of an inch thick. The metal is applied to the paper by the evapration process. In this process both paper and coating metal are placed in a high vacuum. The metal is then heated until its vapor pressure is above that of the surrounding pressure in the chamber. The metal then gives off a vapor which condenses on the comparatively cool surface of the paper.

The "self-healing" effect overcomes the major weakness of conventional paper foil capacitors. Excess voltages do not produce short circuits in these capacitors even though the dielectric may be punctured many times. When a short circuit occurs, the aluminium conting on the paper is melted by the spark, and all molten metal is blown away radially by the arc. This loaves



RE-RUBBERING all types of industrial rollers with dimensional accuracy is a service Advanx are proud of. Whether they are rollers for printing, wool scouring, tanning, laundries, paper manufacturing or textiles, simply phone FA8101—Advanx will be pleased to give you all particulars and service facilities.

ADVANX

TYRE & RUBBER CO. PTY. LTD.

NIELD AVENUE, RUSHCUTTER'S BAY, SYDNEY-PHONE: FA8101



This is the New Advanx Rubber Hardness Gauge IT'S FREE FOR THE ASKING!



FURFURAL

improves

Phenolic Resins

Furfural is enjoying steadily increasing use in the manufacture of phenolic moulding powders—a success soundly based on the technical merit of the phenol-furfural resins.

Moulding powders made with furfural-phenol resins give you the advantage of long flow coupled with quick and complete setting at curing temperatures. This long flow is especially advantageous to the moulder in forming deep draw pieces. These resins maintain their flow properties at temperatures just slightly above those required to induce plasticity, then convert rapidly when the final temperature is reached.

The manufacturer of resins likes **Furfural**, too, for he can react this aldehyde with phenol speedily, thus increasing kettle output and reducing time cycles. Characteristics of furfural-phenol resins also favour good surface appearance in the finished article, and the dimensional accuracy, plus good electrical properties of the moulded articles, are important considerations. Manufacturers of laminating varnishes like its heat resistance, electrical properties, availability and price stability.

Furfural is but one of the ever-increasing Furan family, and we invite your enquiries about any of these interesting new chemicals.

SWIFT

26-30 CLARENCE ST., SYDNEY. BX1831

And at Melbaurne, Brisbane, Adelaide and Perth. Also Wellington and Auckland, New Zealand.

MANUFACTURERS

Do your products look as good as they are?

- are they appealing to the eye?

If not-Let our artists design a colourful decoration with an arresting trade mark!

Then-Watch the sales curve rise!

TRANSFERS

MELBOURNE CENT 1267 BRISBAHE 8 4261 LAUNCESTON 1046 SELEX

SYDNEY MA 2400 ADELAIDE CENT. 8434 PERTH 8 3450

FOR WOOD METAL PAINT PLASTICS GLASS ENAMEL LEATHER

a clean, insulated surface around the puncture. This in no way affects life.

affects life.

Of the three types available, type ML is cardboard encased, type MR metal encased, and type

MQ encased in a tinned, nonferrous shell. The latter type, MQ. is further divided into MQC, mineral wax impregnated, and MQM, mineral oil impregnated. [2450].

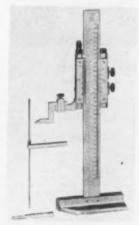
Boxing Height Gauges Have Pressure Limiting Device

There has been developed a range of boxing height gauges, of which a typical model is illustrated, which permit any number of markings, concentric or otherwise, to be scribed about any pair of centre lines without need for calculation.

These patented gauges have all the features of a conventional height gauge, and, in addition, the English reading vernier scale can be adjusted within a range of 1 in. and the metric vernier scale within a range of 1 cm. by means of adjusting screws which are operated by knurled knobe situated on either side of the beam above the scales. When used as a normal height gauge the vernier scales are located in the setting position by means of trapped hardened pins tapped into hardened bushes. These pins are operated by knurled knobe at the back of the silding jaw. The knobe which lock the vernier scales in any required position are also mounted behind the sliding jaw.

When the gauge is to be used for scribing boxing markings, the vernier is adjusted to its normal zero position, which is indicated by the coincidence of the index marks on the sliding jaw and vernier scale. The scale is locked in position and the horizontal centre line inscribed. Vernier scale is then unlocked and adjusted by the knob above it, to the position in which the lowest zero on the scale coincides with the nearest inch or centimetre graduation on the beam, after which the scale is re-locked. Boxing markings can be now scribed

at any distance above or below the centre line setting, which is now a whole number of inches or centimetres. In this way the whole capacity of the height gauge can be used. Additional jo in. figures reading downwards



Range of boxing height gauges incorporate a patented pressure limiting device.

are provided to facilitate English settings below the centre line. The scriber is off-set to permit readings to be taken to zero with-(Turn to page 26.)

R-O-K can make those Parts!



Bumper Bers for



Pressings for Concrete Miser



Body Panels for



Pressings fo



If your problems are pressing Consult the specialists



light, medium and heavy gauge components in all metals, for all purposes. In fact, with their modern press line, machine shop, processing plant, drawing affice and assembly, R-O-K can handle your project from the design and tooling stage to the finished product.



Associated with the "Owen Group" of Companies.

Rubery Owen & Kemsley Pty. Ltd.



VICTORL

Made for 25 Years

D.C. ARC WELDER GENERATOR

Build Your Own Portable Welding Plant Sizes: 150-200-250-300-400-600 amps.

Welding Sets: Stationary, Trailer & Portable
BUY FROM Victoria, New South Wales, Tannania:

CLAYTON-JOEL & CO

JEFFCOTT STREET, MELBOURNE.

'Phono: FJ 2334.

Western Australia: ATKINS, LTD., Hay Street, Porth.
Queensland: EVANS, DEAKIN & CO., Brisbane.
South Australia: POWER PLANT, LTD., 100 Currls Street, Adelaids.

NUMBERING MACHINES



Automatic and Lever Operated Models

Automatic Numbering Heads for Stamping on Metal



Repairs and Spare Parts for all makes of NUMBERING MACHINES, BOOT AND CLOTHING MARKING MACHINES, COUNTERS, BANK STAMPS, METAL STAMP INKS, all





JOHN M. HARDIE & CO.

Manufacturing Engineers and Repairers

434 Little Bourke Street, Melbourne, C.1. Telephone: MU 5327

BOLTS & WASHERS

West Footscray Engineering Works Pty. Ltd. 52 CROSS STREET, WEST FOOTSCRAY, VIC.

'Phone: MW 1289





out the need for raising blocks.
The fine adjusting clamp is
located inside the sliding jaw.
A patented device for limiting
the measuring pressure is also
incorporated. This works on the

ball and ratchet principle and is compensated for by the weight of the jaw. When the jaw comes into contact with the work, the device slips at a pre-set pressure. [2474].

Modern Laboratory Vacuum Pump

To meet the demand for a vacuum pump which can be moved round as easily in a laboratory as a hand electric drill in a workshop, a British firm has developed the 1 in. F.R. compact pump. The weight of the complete unit with motor is only 33-lbs. and is completely free of vibration, permitting it to be run on a bench or table without boliting down.

The close ground cast iron cylinder having a ground horizontal bore has mounted in it an eccentric rotor of smaller diameter, running in line contact with the top of the bore. The rotor is of built-up construction made from die-cast iron, and carries two sliding vanes running in a closely toleranced slot. These vanes sweep out the air space in the cylinder of the rotor. The top of the cylinder casting is extended to form an oil well which seals the discharge valve and feeds oil to the cylinder bore for lubrication purposes.

The discharge valve is of the rotary-disc type, and has a stain-less steel plate returned by a light spring on to a renewable seat. The rotor is reduced in temperature and supported at both ends by plain bearings in the cylinder and covers. At one end the rotor is extended to form a steel shaft beyond the bearings for the drive. To prevent air leakage to the pump along the driving shaft a special rotary seal is used which besides being perfectly air-tight under working conditions, reduces the power absorbed and does not score and wear the shaft.

wear the shaft.

The rotary seal consists of a hardened ground and lapped steel cup which is pressed by means of a spring against a prepared rubbing face on the cylinder cover. Interposed between the spring and cup is a square-sectioned rubber ring, backed by

a steel follower ring, the rubber ring being a tight fit on the shaft and in the cup. Driven by the fit of the rubber ring on the shaft, the whole assembly rotates with the lapped face of the cup hearing on the stationary front cover.

To complete the seal the entre space is filled with oil fed from the main system. The action of the oil on the rubber ring makes it stick firmly to the shaft and rotary seal cup. This adhesion is so strong that firm pressure is needed to dismantle the rotary seal from the shaft after it has been in use.

A flexible sleeve type coupling connects the pump and motor. With direct coupling of this type the pump runs at the motor speed of 1.425 revs. per minute, and although this may seem high when compared with other rotary pumps it should be borne in mind that the blade velocity is considerably less on a 2 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than on a 5 in. cylinder at this speed than the pump can be stripped, cleaned and re-assembled in a matter of minutes without the use of special tools. As in other types of laboratory pump, the covers are not spicotted so that if at any time acid, etc., attacks the cylinder bore it can be reground and the pump re-assembled with a return to its original performance. The discharge can also be used for moderate and occasional pressures, but a continuous pressure duty cannot be allowed due to the heat generated by the compression. The H.P. of the motor is 1/6th, and with an ultimate vacuum of 0.1 mm. off perfect on a McLeod type gauge, the swept volume is 1 cubic ft, per minute. This pump will evacuate a volume of 71 itres to 760 m.m. in approximately 70 seconds. [2448].



We are Specialists in the Field of CUSTOM BUILT MOTORS

Don't waste time and money adapting that conventionally designed motor to suit your own special application.

Whether Your Product is a

- SEALED UNIT REFRIGERATOR
- DISH OR CLOTHES WASHING MACHINE
- MACHINE TOOL
- · CIRCULATING OR EXHAUST FAN
- · PUMP, Etc.

Avail yourself, entirely without obligation, of the services of our sales and engineering staffs, to advise on your particular requirements.

TYREE Can Supply the Motor Ready to Bolt into Operating Position

Available in a comprehensive range up to ½ H.P. Split Phase and ½ to ‡ H.P. Three Phase, also Capacitor Start Types. We also specialise in the manufacture of lamination dies and the supply of laminations of all types.

Representatives in all States :
F. W. GREEN & CO.
FTY. LTD.

TYREE PRODUCTS ARE COMPLETELY MANUFACTURED IN AUSTRALIA BY

TYREE ELECTRICAL CO. 66 PARRAMATTA RD., CAMPERDOWN, N.S.W. Telephone: LA 4257-8-9



INDUSTRIAL

HELICAL SINGLE REDUCING OR INCREASING GEARS
DOUBLE HELICAL SINGLE AND COMPOUND GEARBOXES
RADICON WORM REDUCERS SINGLE AND DOUBLE REDUCTION
SPUR — SPIRAL — HELICAL — BEVEL AND WORM GEARING
GEAR-CUTTING TOOLS — COUPLINGS — P.I.V. VARIABLE SPEED GEARS



Sales Representatives :

E. J. ARMSTRONG H. E. DINGLE R. I. RAY & CO. FRANK DE ROSE & CO. FLOWER, DAVIES & JOHNSON LTD. CROSSLE & CAMERON PTY. LTD. SYDNEY NEWCASTLE PORT KEMBLA ADELAIDE

THE RICHARDSON GEARS PTY. LTD.

17 WHITEHALL STREET

FOOTSCRAY

VICTORIA

AUSTRALIA

FOUNDERS OF THE GEARING INDUSTRY IN AUSTRALIA



Finished clay products, ready for burning.



Special lathes and tools are used for turning and profiling. Pugged clay, after de-airing, is extruded into wads, placed on steel mandrels, and turned to the required shape by skilled operators.

Industrial Ceramics

Progress of Nilcrom Porcelains (Aust.) Pty. Ltd.

In view of the progress which has been made in heavy industry in Australia in the last decade, it is encouraging to note that other secondary industries have also kept step in the changeover to local production of articles and commodities which were praviously imported into this country.

which were previously imported into this country.

In none has the advance been more spectacular, or has it been attended with more success, than in the production of Porcelain, Steatite and Refractory products. Begun during the war when overseas supplies were virtually cut off, the production of "Low-Loss" Ceramics reached major proportions when it was carried on in conjunction with the manufacture of short-wave radio communication and radar equipment.

In providing components for this equipment, Nilcrom Porcelains (Aust.) Pty. Ltd. were called upon, at their modern, specially air-conditioned factory at 221 Separation Street, Northcote, Victoria, to produce thousands of these "Low-Loss" Ceramics with dimensions accurate down to previously unheard-of tolerances.

WITH the experience gained during this period, and in the light of years of research and practical manufacturing, Nilcrom Porcelains (Aust.) Pty. Ltd. has taken a leading part in Australia in the production of high-class electrical porcelains and radio ceramics using steatite and sirconium silicates.

To achieve this quality in the finished product it is of paramount importance to select raw materials with the greatest care. Culled from hundreds of samples obtained from all parts of Australia, these are tested by qualified chemists in a well-equipped, modern laboratory where the clays are analysed and have their physical properties determined by the most up-to-date methods known to science.

The laboratory is a miniature processing plant where samples are produced from the raw clay to the final burning in an electric test kiln. Here continual research is conducted with the aim of maintaining overseas standards in Australian-made ceramics.

When the laboratory has proved clays to be within the Nilcrom specifications, the raw materials are then wet or dry-ground to predetermined grain sizes according to their particular application.

production of high-class electrical For wet-grinding the clays are porcelains and radio ceramics using ball-milled for set periods to a steatite and sirconium silicates.

sistency known as "slip." This "slip" is passed over powerful electro magnets to eliminate ferrous impurities, and is then sieved to remove non-magnetic extraneous matter.

It is then filter pressed and the filter press leaves are stored in a humid atmosphere for several months to permit adequate maturing. From this stage the leaves are either blunged with the optimum electrolyte for allp casting or pugged and extruded for turning or profiling.

For dry-mixing, the clays are first dry ground to a specified grain size, then mixed in a dry grinder when the binder is added. The materials are then disintergrated and sleved ready for pressing in steel dies to specific shapes.

Great care is necessary to ensure that the materials and mixtures accord to specifications. The moisture content is closely watched as this, with the grain size, plays an important part in the control of contraction. The raw clays are now prepared as a body, ready for forming by either pressing, turning, profiling or casting.

For irregular and complicated shapes, screw presses are used, but for mass production of simple designs fully automatic presses are employed. By carefully guarding the moisture content, together with



For irregular and complicated shapes, screw presses are used, but for mass production of simple designs fully automatic presses are employed.

[June 3, 1950, Page 29.]



Turning clay to required shape.

the correct mix, it is possible to pre-determine the amount of contraction to produce finished articles to plus or minus tolerances of .002 ins.

TURNING AND PROFILING

Special lathes and tools designed in their own factory are used for turning and profiling. Pugged clay, after de-airing, is extruded in wads, placed on steel mandrels, and turned to the required shape by skilled operators. In this way Nilcrom tubes may be threaded from one thread per inch up to 80 threads per inch, or tapped to take standard screws.

CASTING

In casting, plaster moulds are filled with clay "slip" of controlled density and left for a certain period. When the required thickness is obtained the surplus "slip" is then poured out of the mould.

A further period is then necessary to allow the article to solidify, after which the mould is dismantied and the article is extracted. Irregular shapes such as hot-water jugs, bent tubes and very large insulators are all cast in this way.

From all these manufacturing processes, the articles, still in the green clay state, are passed to the drying room where hot air is transferred from a heat exchanger at the kiln stack through underground ducts to the drying room. From the drying room, they pass to the finishing off process known as fettling, glazing and finishing.

FETTLING AND GLAZING

First, surplus fins are removed and uneven surfaces are corrected, after which visible impurities such as oil stains and finger marks are



In this section, girls remove surplus fins, correct uneven surfaces and remove visible impurities such as oil stains and finger marks. Wherever dust originates extractors have been installed to keep the

eliminated. Then, where glazing is specified, the products are either dipped or sprayed with a glazing clay "alip". the glaze will crack (known as crazing), and tend to peel off.

Owing to the high firing temperature which a quality insulator



Wet Grinding: Here the clays are ball-milled for set periods to a controlled grain size and fluid consistency known as "slip". This sallp" is passed over powerful electro magnets to eliminate ferrous impurities, and then through very fine sieves to remove non-magnetic extraneous matter.

At this stage of production, where coloured products are required, metallic oxides are mixed with the glaze slip. Here again special control is required because, if the glaze does not fit the body. or product demands, certain colours only can be obtained without having to resort to further burns.

BURNING AND TESTING Burning must be carried out



Dry Grinding: In this section the clays are first dry ground to a specified grain size, then mixed in a dry grinder and the binder added. The materials are then disintegrated and sieved ready for pressing in steel dies to specific shapes.



Close up view of screw press.

with extreme care and for this process large, scientifically designed down-draught kilns fired with liquid fuel, are employed. Firing control is aided by potentiometric temperature recorders and optical pyrometers.

Porcelain products are first placed in fire clay-anguers which are carefully stacked within the kiln. Careful stacking is necessary so that the draught in the kiln can be consistently regulated. Trials are frequently drawn from various parts of the kiln during the burning to check contraction, vitrification and glass.

The product is now at the porcelain or ceramic stage. After discharge from the kilns, each article is subjected to inspection, gauging, and is then passed to the testing department, where all products are tested electrically, physically and mechanically.

Under the closest supervision at every stage, Nilcrom products have built up an impressive reputation for quality which is jealously guarded. Comparing favourably with the best overseas manufactures, they are being constantly improved by research and the application of the latest technical advances in the industry.

WIDE RANGE OF PRODUCTS

Nilcrom products cover a wide range of trade requirements and include Nilcrom Porcelain Electric Jug Bodies and Lids. Made of the best quality, non-craring, highly glazed, vitrified porcelain, these are finished in a variety of colours to suit individual customer's requirements.

Where reasonable quantities of Porcelain components are required, the least costly method of producPrecision Built for SPEED,
ACCURACY and STABILITY

DOUGLAS

101/2-in. stroke SHAPER



A PRODUCT OF

P. K. DOUGLAS

Manufacturing Engineer ASHFIELD, N.S.W.

AGENTS:
DEMCO MACHINERY CO. PTY, LTD.
SYDNEY and MELBOURNE

tion is the pressing process using hardened steel dies. Such components, which are used by the electrical industry in general, may be supplied in glazed or unglazed finish as required.

REFRACTORIES

Nilcrom refractory ware (for use at high temperatures) is processed in the clay state by extrusion, pressing or turning. Having a wide field of application for radiator cores, jug element cores, etc., these are supplied normally for temperatures up to 1200 deg. centigrade, though a special body is available for higher tempera-

Nilcrom refractory ware is generally supplied with an unglazed finish although other finishes can be produced where required. Specialising in refractories as they do, Nilcrom Porcelains (Aust.) Pty. Ltd. always welcome enquiries from users of high temperature ceramics and have a panel of experts available to offer advice or to co-operate in filling all requirements.

CERAMIC COIL FORMERS

Formers are produced from hin. to 14in, outside diameter and up to 40in, in length in thicknesses calculated to give ample mechanical strength. The smaller types are produced by turning and the larger types by the casting method.

Formers may be glazed if required, but as they are guaranteed non-hygroscopic, glazing need be considered only from the point of view of cleanliness. They are widely used throughout the electrical industries.

A range of Porcelain Formers with tapped holes to take Whitworth or B.A. screws are available, or can be made to suit customer's requirements.

RESISTANCE TUBES

Produced by the extrusion and turning processes, Nilcrom Resistance Tubes are made to satisfy the most exacting demands of users. Guaranteed non-hygroscopic, they can be supplied threaded or plain as required, and slotted inside or out. Grooved types with drilled holes are available at short notice.

INSULATORS, TRANSFORMER BUSHINGS

A large range of Insulators and Transformer Bushings are manu-

(Turn to page 32.)

FUSES



For RADIO, AUTOMOBILE, AIRCRAFT, BOOKKEEPING MACHINES, Etc.

All current ratings from 100 m.a. to

H. G. Goddard Pty. Ltd.

106 Devonshire St., Sydney, N.S.W. Telephone: MA 7834

Aiso Manufacturers of Bookbinders' Hardware and Specialists in Automatic and Turret Lathe Repetition Engineering.

Brass Finishing

AND

General Engineering

We Specialise in
CHROME PLATED FITTINGS
AND HIGH PRESSURE
PLUMBERS' BRASSWARE

Donald Engineering Co.

Rear of 68 Holmes Street, EAST BRUNSWICK, VIC. "Phone: FW 1940

ANTI-FRICTION WHITE METAL

Graded for All Uses.
THE FAMOUS

"Waratah Brand" WILSON WARATAH METAL

CO. PTY. LTD. Norman Ave., East Brisbane.

Stocks available at J. BLACKWOOD & SON LTD. 86 Sussex Street, Sydney, and SMITH & REID, Scott Street, Newcastle.

...



ILLUSTRATION SHOWS A SLIPWAY WINCH BY HOSCO HAULING 21 THOUSAND TON, I IN 20 GRADIENT.

"HOSCO." PERTH.

"HOSCO"

THE DESIGN AND WORKMANSHIP, COMBINED WITH FIRST-CLASS MATERIALS AND CASTINGS IN MEEHANITE METAL, MAKE SATISFACTION ASSURED FOR HOSCO CLIENTS.

- * WINCHES AND WINDERS
- * OVERHEAD CRANES
- * KILNS AND DRYERS
- * BOILERS AND INSTALLATIONS
- * MINING MACHINERY
- **CONVEYORS**

Manufactured to Your Specifications

HOSKINS ENGINEERING AND FOUNDRY PTY. LIMITED

MANUFACTURING AND IMPORTING ENGINEERS AND BOILERMAKERS

494 MURRAY STREET, PERTH, WESTERN AUSTRALIA G.P.O. BOX J727, PERTH

'PHONE: BA 2237.

PLASTIC MOULDED, STANDARD, B. C. LAMPHOLDERS 240 VOLTS 3-0 AMPS H 810 G HOLDER ALSO H 812 H 811 3 PLATE 2 PLATE BATTEN HOLDER BATTEN HOLDER REPRESENTATIVES J. H. WILKINSON J. H. WILKINSON
289 Flinders Lane, Melbourne, Vic.
JOHNSON & GASTON (Qld.)
303 Adelaide Stn. Brisbane, Qld.
303 Adelaide Stn. Brisbane, LTD. 303 Adelaide 37. grisbane, viu.
JOHNSON & GASTON FTY, LTD.
55 Piris 51. Adelaide, S.A.
55 Piris 52. EVERETT
158 William 51., Porth, W.A. JOHNSON & GASTON PTY LTD. 200 Menchester St., Christchurch, J.J. HOELL 47 ALMA ST., DARLINGTON. N.S.W. TEL.: MX1561-3.



METALEX Brass Rod will help to solve your problems. Rounds, Hexagons and Squares available from stock. Shapes produced to specification with minimum delay.

METALEX

BRASS

BRONZE

High Speed Machining Brass Hot Forging Bress **Riveting Brass** Cold Heading Brass Wire

Naval Brass Manganese Bronze

Architectural Bronze Nickel Silver And to Specification Let us help with your problems

Expert technical service readily available

METALEX PTY. LTD.

FDWARD STREET

EAST OAKLEIGH, VIC.

'Phone: UM 1053

Selling Agents: 597 Lonsdale Street MELBOURNE. Phone: MU 9031.

NOYES BROS. (Sydney) LTD. 115 Clarence Street SYDNEY. 'Phone: BX 1781.

NOYES BROS. (Melb.) LTD. Adeleide, Hobert, Launceston, 597 Lonsdale Street Devonport, Perth, MELBOURNE. Phone: MU 9031. Broken Hill.

Brisbane, Wallangong, Mildura, Newcastle, Mackey.

Reduce cost by returning scrap to us at best prices.

(Continued from page 30.) factured for the radio and electrical trades. Insulators are available in pedestal, feed-through and stand-off types. Bus-bar Insulators are available in plain and rilled styles. Button Insulators are supplied in a number of useful

Antenna Insulators are procurable fully glazed with brown or white finish in lengths up to 36 inches. Thousands of these were supplied to the Armed Forces during the war.

Insulators and Transformer Rushings are made up for the largest installations, an example of which ls a 150,000 volt Transformer Bushing 45 inches in length. While this can hardly be regarded as a typical example, smaller types are in service in the largest radio and electrical installations in Australia, both by Government bodies and private enterprises.

Employed in ever increasing numbers within the capacity of the Northcote factory of Nilcrom Porcelains (Aust.) Pty. Ltd., they are acknowledged as equal to the world's best.

With the Electrical Industry facing steadily increasing competition from overseas, manufacturers are obliged to make a careful examination of costs in conjunction with quality of output.

Nilcrom components offer the highest quality obtainable, while the employment of the most advanced methods of production ensures that costs are pegged at a minimum. Enquiries from the trade should be addressed as follows:

VICTORIA: Nilcrom Electrical Sales (Aust.) Pty. Ltd., 45 Bourke Street, Melbourne, Vic.; N.S.W.: Nilcrom Electrical Sales (Aust.) Pty. Ltd., 26 Market Street, Sydney, N.S.W.; QUEENSLAND: K. H. Dore, Heindorff Buildings, Queen Street, Brisbane, Q.: SOUTH AUST .: E. Bown, Grenfell Street, Adelaide, S.A.; and WEST AUST .: M. J. Bateman Pty. Ltd., 12 Milligan Street, Perth. W.A.

OFFICE EQUIPMENT EXHIBITION.

Enquiries made by the Mel-bourne Division of The Aus-tralian Institute of Management indicate a great desire by Executives to have brought together into one building—for convenience of reference—office machines, systems and equipment. together Institute-encouraged (Turn to page 34.)

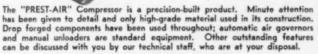
For Peak Performance

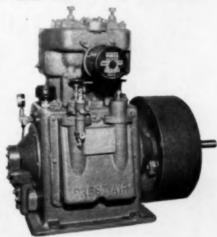
nstall PRESTA



"PREST-AIR" AIR COMPRESSORS BUILT ENTIRELY IN AUSTRALIA

The range of "PREST-AIR" Air Compressors covers models of capacities up to 200 cfm, free air delivery at 100 lbs, pressure per square inch. Two of the models, the P.30 on the left and the P.80, are illustrated on this page. The accompanying table gives further details of the models in this series. These HEAVY DUTY Compressors are available for immediate delivery, together with motors of the recommended size.





Compresser	F.A.D. C.F.M. (Approx.)	R.P.M. (Approx.)	H.P. at Flywheel at 100 lbs. pressure	Recommended Motor Size	Cylinder Diameter and Stroke, ins.
Single Cylinder	30	350	7	71/2	6 x 7
P40	40	440	8	10	
	45	500	44	121	4 . 7
Twin Cylinder	60	350	19	15	6 x 7
P80	80	440	17	20 25	
	90	500	191	25	7 - 0
Twin Cylinder	100	350	22	30	7 x 8
P130	130	440	201	35	
*	145	500	30½ 35	40	01 - 10
Twin Cylinder	160	300		45	8½ x 10
P200	200	370	42	50	
	215	400	451	50	



BOWDEN STREET, ALEXANDRIA, N.S.W.

'PHONE: MX 1191

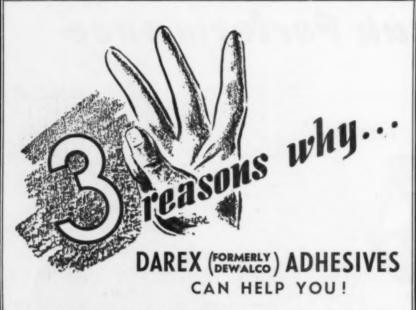
Cnr. Capell and Queensberry Streets NORTH MELBOURNE Talanhore: F.J 3616 BRANCHES AT 340 Wickham Street THE VALLEY, BRISBANE Telephone: L 2886

133 Waymouth Street ADELAIDE Telephone: Cent. 6755 Telephone: BA 3999.

Telephone: FJ 3616

Telephone: L 2886

Western Australian Representative: Mr. S. Y. Garnsworthy, 69 St. George's Terrace, PERTH.



- 1 They are the product of research, developed to fit your needs. A complete line of dependable laboratory-controlled adhesives, made of the finest available materials, constantly improved to meet changing conditions.
- 2 Made by specialists in canners' and carton adhesives, sold and serviced by men who know what you want with a background of years of successful experience.
- 3 __ They are AVAILABLE NOW. More and more are being used all over the world.

PICK-UP CEMENTS and LAP PASTES

for Automatic Can Labelling

CARTON & CASE SEALING GLUE 712:

For sealing all types of corrugated or fibreboard

CARTON & CASE CEMENT 297 (WATERPROOF): For waterproof sealing of fibreboard containers. PICK-UP GUMS:

For cold can labelling pick-up.

TIN PASTE:

For hand labelling operations on tinplate, glass, plastic or metal surfaces.

Dewey and Almy Proprietary Limited

SYDNEY ROAD, FAWKNER, N.15, VICTORIA

Telephone: FL1241

Cambridge, Mass. — Chicago — Buenes Aires — San Leandro, California — Montreal — London

INTERSTATE DISTRIBUTORS FOR DAREX LABELLING ADHESIVES: SOUTH AUSTRALIA: THORLIN SUPPLY CO.

90 King William Street, Adelaide.

WESTERN AUSTRALIA : W. H. EVANS PTY. LTD. 115 St. George's Terrace, Perth. (Continued from page 32.)

the successful experience of its nine previous Conferences—there-fore plans to hold at the Exhibi-Building, Melbourne, an Management Conference Office Management Conference and Exhibition on Tuesday, 11th July, from 3 p.m. to 10 p.m.; Wednesday, 12th July, from 11 a.m. to 10 p.m.; Thursday, 13th July, from 11 a.m. to 10 p.m.

The Conference and Exhibition is being designed to present to Top Management, as well as to office executives and junior and office executives and junior and senior staffs, methods, and equip-ment which will enable them to achieve the maximum effective-ness in their own offices and in their own operations. Office systems and equipment specially useful in Storekeeping and Production Control will also be included in the Exhibition.

At this first Conference and At this first conference and Exhibition—which it is intended in future to hold annually—there are to be: Exhibits and working office of the conference of th demonstrations of office machines, business systems, and office equipment; Series of lectures designed specially to interest Managers, office executives, est Managers, office executives, clerical staffs and stenographers.

clerical staffs and stenographers. The Exhibition is to be open free of charge: to Conference delegates; to Company and individual members of the Institute, and to the exhibitors' guests. Students of Commerce and Management will be specially invited to attend.

There is being issued a programme, in which will be information about the Conference, summaries of the lectures, descriptions of the exhibits, and exhibitors' announcements.

The Institute extends a cordial invitation to all interested in Office Management to participate in this Conference which prom-ises to be a most important event in its Management Calendar.

STANDARDS FOR DENTAL MATERIALS.

The Standards Association of Australia has issued the following Australian standards for materials:

T.1-1949-Dental Mercury;

T.1-1949—Dental Mercury;
T.2-1949—Dental Amalgam Alloy.
T.3-1949—Zinc Phosphate Cement
for Dental Purposes.
These specifications are the
first three of a series of Australian standard specifications for dental materials, the preparation of which has been undertaken at the individual requests of the Commonwealth Department of Health and the Australian Dental Association. They prescribe com-position or performance requirements and methods of test. The Australian Dental Association will use these specifications in proposed scheme for certifying the quality of dental materials from both local and overseas sources, marketed in Australia. certifying **OVERSEAS**

Copies of the standards may be purchased from the Standards Association of Australia.



Greaseless bearings cause damage! TECALEMIT Automatic Lubrication protects machinery

An oversight or a stoppage in a manual lubricating system may result in serious and costly damage to valuable machinery. In any case, with manual systems, there is no guarantee that grease will reach every working part.

The Tecalemit Radial Mechanical Lubricating Pump ensures that the correct quantity of fresh grease is supplied to from 1 to 20 points at pre-determined intervals. The system is entirely automatic—the pump is normally operated from a rotating member of the machine.

The Tecalemit Radial Mechanical Lubricating Pump has proved its versatility and efficiency on installations such as the mechanical lubrication of Stone Crushers, Centrifugal Pumps, Escalators, Rolling Mills, Mixing Plant, Overhead Cranes, etc.

Insure against frequent overhauls, breakdowns, high maintenance costs—contact us for details of the wide range of manual, mechanical, air and electrically operated semi- and full-automatic Tecalemit Lubricating Systems.



Tecalemit Redial Grease Pump, Model 17850, 8tted to a 25" x 16" jaw crusher. There is a Tecalemit Application to suit every class of industry.

H.S.W. DISTRIBUTORS:

MANUFACTURER'S EQUIPMENT COMPANY

280 CASTLEREAGH STREET, SYDNEY. TELEPHONE MA 2716

(Division of Westcott Hazell & Co. Ltd.)

ME-LIEP



INQUIRIES FOR PLANT MATERIAL AND AGENCIES

"THE AUSTRALASIAN MANUFACTURERS" INQUIRY DEPARTMENT

This Inquiry Service is for the use of readers of "The Australasian Manufacturer" who wish to trace suppliers of Plant, This inquiry Service is for the use of readers of 'The Australasian Manufacturer' who wish to trace suppliers of Piant, Equipment and Materials, and for particulars of agencies offered. Address your inquiry to the Inquiry Department, and give the fullest possible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in touch with the best sources of supply.

In the sessible particulars to enable us to put you in the supply and supply

SPECIAL NEW INQUIRIES.

WHEN REPLYING to an Inquiry, please quote the Reference Number and send your reply to the Inquiry Department, "The the Inquiry Department, Australasian Manufacturer," Bond Street, Sydney, INCLUDE A PLAIN, STAMPED ENVELOPE so that we can forward your reply to the Inquirer.

SPRING STEEL WANTED; Brisbane firm wants to purchase quantities of $\hat{\gamma_0}$ in. Spring Steel in widths of 2 in., 21 in., or 21 in., in lengths of 2 ft. 6 in upwards. Write to Ref. sring Manufacturer". Ref. 8178, c/o "The Australasian

COLOURED LENSES FOR SWITCHBOARDS: Victorian firm desires to contact makers or supdesires to contact makers or sup-pliers of coloured lenses for flush pilot receptacles which they fit to switchboards. These lenses are made of glass, some being shaped round and others oblong. They vary in size from about 2 in. d'ameter to approximately 2 in. The colours are usually red, green, blue and orange. They are also used on radio

DIESEL DRIVEN ALTERNA-TOR SET FOR SALE:—Engine by Vickers-Petters. Vertical Twin Cylinder. 43-K.V.A. Alternator, 415-voits. Complete Plant. Write to Ref. 6577, c/o, "The Aus-tralasian Manufacturer."

PLASTIC MOULDINGS, DIES AND AUTO. LATHE CAPACITY

Specialists in Electrical and Industria! Mouldings. Prompt service. MASTERCRAFT PLASTICS
72 Perrametta Road, Stanmore
N.S.W. LA 2680, FW 3619.

receivers, motor car head lamps and dash boards, and in telephone exchanges. Size wanted is approximately ‡ in. diameter. Write to Ref. 8179, c/o "The Australasian Manufacturer".

PROPELLER SHAFTS FOR SALE: Sydney firm has available for sale new Manganese Bronze and Monel Metal Propeller Shafts. If interested, write to Ref. 8180, c/o "The Australasian Manufacturer

WATER BAISING APPLI-ANCES, WINDMILLS, PUMPS, ETC., AGENCY AVAILABLE. Well known Australian firm manu-Well known Australian firm manu-facturing all types of Water Rais-ing Appliances, including Wind-mills (Direct Acting and Geared), Pumps (Centrifugal and all other types), Pumping Heads, Jacks and all accessories, is interested in ap-pointing distributors in Victoria. Firms interested in accuring this agency are asked to write to Ref. 8181, c/o "The Australasian Manufacturer".

to 13 in.-1/6 lb.; W18 Highand U.S.S. Ground thread taps at cut prices to clear, FOB Bris-bane. Write to Electrical and Mechanical Construction Co. Pty. Ltd., 9 Stanley Street, South Brisbane.

STEEL AND MACHINE TAPS

FOR SALE: Brisbane Company has for sale 30 tons special steels has for sale 30 tons special steels at cut prices. Clearance includes CHNC 12 in. square—235 ton; 3% nickel in 5/16 in., 7/16 in., 3/16 in. and 2 in. Hexagons, also 12 in rounds—240 ton; Supertough B in 31 in. and 4 in. rounds—440 ton; W6 Die Steel in rounds—740 ton; W6 Die Steel in rounds from 2 in. speed steel in numerous sizes-3/6 lb. Large quantity B.A., B.S.F.



"DRILLAIR" CLAMP

The Modern Complement of every DRILLING MACHINE

in the Tool Room — for Repetition Work for R. & M.

Holds the job firmly Quickly set to any height and angle Simplifies jig design Prevents accidents

ACTA PTY. LTD. 15 O'Connell Street, Sydney, N.S.W. 'Phone: BW 7431

AUTOMATIC ENAMELLING FLANT FOR SALE: Melbourne firm has an automatic enamelling plant for sale. This plant includes equipment for degreasing, washing, dipping, gas infra-red baking and cooling on conveyor. Total length about 60 ft. It is a most modern plant for japanning large numbers. Write Bef. 8182, c/o "The Australasian Manufacturer".

BRIGHT SHEET STEEL FOR EXCHANGES: A Sydney firm will exchange 18 Gauge Matt Pickled "R" Sheet Steel for 20 Gauge of a similar grade. Write to Ref. similar grade. Write to Ref. 8170, c/o "The Australasian Manu-8170, c/o facturer".

NICKEL SILVER STRIP AND BRASS WIRE FOR SALE: N.S.W. firm has for sale a quan-tity of Nickel Silver Strip, .130 in.

HYDRAULIC MOULDING PRESS FOR SALE

Sydnoy firm has for sale one only Stacy 100-ton Hydraulic Meulding Press with electrically-heated platten and thermostat with a motor-driven rotary pump. This press has had very little use and is in excellent condition. Price. 2375. Apply: FLEXIBLE FILE CO., 34 Hutchiason Street, Surry Hills, N.S.W.

.030 in. Nickel Silver Wire .076 in. and .056 in., also brass wire .076 in diameter. Write Ref. 8171, c/o "The Australasian Manufacturer".

ELECTRICAL APPLIANCES-AGENCIES WANTED: Melbourne Agent with established connections electrical wholesale trade desires additional lines. Best references.

VITREOUS PORCELAIN ENAMELLING

Completely Modern Continuous Furnace with Capacity Available for Sheet Metal Enamelling.

Continuous Basis Preferred.

W. T. CARMICHAEL LIMITED

RAWSON STREET, AUBURN, N.S.W. UX 7407.

JOHN HART PTY. LTD.

Sole Australian Agents for . . .

L'ALUMINIUM FRANCAIS - ALUMINIUM INGOTS

414 Collins Street, MELBOURNE. Cables: "HARTOG," Melbourne



A USTRALIAN-MADE F.M.C. Flash Welded Stud Link Chain Cables — the chain with the PERFECT weld — can always be relied on for dependable service. Every link is proof-tested in the F.M.C. Testing Machine, passed and registered at Lloyd's Register of Shipping, London.



Representatives in all Capital Cities

Markets Available

ENGINEERS' SUPPLIES
HAND TOOLS
MOTOR ACCESSORIES
MOTOR CYCLE ACCESSORIES
MOTOR BODY BUILDERS' SUPPLIES
PLUMBERS' SUPPLIES
BUILDERS' SUPPLIES
BUILDERS' SUPPLIES

A. V. WATT & SONS

Manufacturers' Reps.

14-16 St. Francis St., Melbourne

SOLUBLE SILICATES of • Soda • Potesh True to Specification.

Silicate & Dolomite Co. of Aust.
Pty. Ltd. Pyrmont, N.S.W

Reply to Ref. 8172, c/o "The Australasian Manufacturer".

MEN'S UNDERCLOTHING—MANUFACTURING ARRANGE-MENT: A New York Company manufacturing underwear, pyjamas and sportswear for men, is interested in the possibility of a licensing arrangement with an Australian firm whereby its trademark and patents would be used on merchandise manufactured and distributed in Australia. Firms interested in this inquiry may secure further particulars on application to Ref. 8173. c/o "The Australiasian Manufacturer".

PNEUMATIC MARKING MACH-INE WANTED: Sydney organisation wants to purchase a pneumatic machine for marking steel parts, 1/16 in. and å in. letters and figures. If you can supply, write to Ref. 8174, c/o "The Australasian Manufacturer".

STEEL AND MACHINE TAPS FOR SALE: Brisbane Company has for sale 30 tons special steels at cut prices. Clearance includes CHNC 12 in. square-435 ton; 3% nickel in 5/16 in., 7/16 in., 3/16 in. and 1 in. Hexagons, also 12 in. rounds—440 ton; Supertough B in 3½ in. and 4 in. rounds—640 ton; We Die Steel in rounds from 1 in. to 12 in.—1/6 ib. Will Highspeed steel in numerous sizes—3/6 ib. Large quantity B.A., B.S.F., and U.S.S. Ground thread taps at cut prices to clear, F.O.B., Brisbane. Write to Electrical and Mechanical Construction Co. Pty. Ltd., 9 Sianley Street, South Brisbane.

MATERIAL WANTED: Melbourne firm wants to buy 200 ft.—

1 in, Bright Shafting and 330 ft of 3 x 3 x 3 -5/18 in, or 2 in. Angle Iron. Write Ref. 8175, c/o "The Australasian Manufacturer".

REMNANT STEEL FOR SALE
OR EXCHANGE: Melbourne firm
has for sale or exchange the following material: Mild S.eel Sheet 10-24
gauge: Stainless Steel Sheet, 10 and
12G; Zincanneal 20G; Zinc No. 10;
Copper Sheet 20-26G; P.G. Iron
16-24G. Write to Ref. 8178, c/o
"The Australasian Manufacturer".

AGENCY AVAILABLE—ELECTRICAL CABLES, FLEXES, Etc.: Melbourne firm is interested in appointing an Agent in New South Wales for the distribution of a range of English electrical cables, flexes, car cables, as well as other electrical and hardware lines. Further information on application to Ref. 8377, c/o "The Australasian Manufacturer".

COPPER TUBING WANTED: Queensland firm requires urgently 3,000 ft. of \$in. O.D. x 20 gauge Annealed Copper Tubing in colis or straight lengths. Write Ref. 8167, c/o "The Australasian Manufacturer."

STEEL STANDS — FABRICA-TION WANTED: Established distributing company would like to hear from fabrication engineers who are able to make up

(Turn to page 39.)

CRYSTAL - LAPORTE

PTY. LTD.

Take pleasure in

ANNOUNCING

They are now the sole agents in Australia for

National Titanium Pigments Ltd. of Luton, England

"TIONA" BRAND

TITANIUM OXIDE 98/100%
Anatase type pigment. Free Chalking.

"RUNA" BRAND

TITANIUM OXIDE 97/99% Butile type pigment. Chalk Besistant.

CRYSTAL - LAPORTE PTY. LTD.

MELBOURNE: 36 Park Street, S.C.S.
SYDNEY: 73 Banksia Street, Botany.

Tel.: MX 1910.

FOUNDRY for all types of Castings in IRON, BRASS, and STEEL

INDUSTRIAL in all Grades of FLAKE and AIR-GRAPHITE FLOATED

VOLCLAY II BENTONITE

STOCKS CARRIED BY AGENTS:—VIC.: Gilbert Ledge & Co. Ltd., 3-9
Hanna Street, South Melbourne, QLD.: Underbill, Day & Co., Ltd., Queen
Street, Brisbane, S.A.; E. Troliving, Light Square, Adelaide, W.A.; Atkins
(W.A.) Ltd., 194 Hay Street, Ferth. N.Z.: Gilbert, Lodge & Co. Ltd.,
Routh's Buildings, 142 Featherstone Street, Wellington, N.Z.

JAMES CUMMING & SONS
PARRAMATTA ROAD, AUBURN, N.S.W. Phone: UX 7007.

STEEL COMPONENTS

We have large stocks of steel for the manufacture of Component Parts made from Bar Stock, from 4in. to 5in, diameter.

*LIBERAL PRICES

· QUICK DELIVERY

. SMALL OR LARGE QUANTITIES

We have a special department for Brass and Steel repetition work.

A. E. HERBERT PTY. LTD.

BIRMINGHAM ST., ALEXANDRIA, N.S.W.
MU 2834 — MU 2705

G. E. CRANE & SONS LTD.

33 PITT STREET, SYDNEY, N.S.W.

Manufacturers of

ALUMINIUM

Sheet, Strip, and Circles, Aluminium Alloy Ingots.

COPPER

Sheet, Strip, and Circles, Copper Sheething.

BRASS MUNTZ'S METAL & SILICON COPPER ALLOYS

IN SHEET, STRIP, AND CIRCLES, NAVAL BRASS SHEETS AND SHEATHING.

LEAD - Shoot, Pipe, Dampcourse, etc. PURE TIN - Sheet and Pipe.

NON-FERROUS METAL EXTRUDED PRODUCTS

Collapsible Tubes for Dentifrices, etc.

PLASTIC MOULDED PRODUCTS.

SHEET METAL PRODUCTS FOR BUILDING TRADE.

BRASS FITTINGS FOR WATER, SEWERAGE & GAS SERVICES

"SIRIUS," "METEOR" AND "PLANET" Plated Brassware. "STANWAY" Flumbors' Brassware.

MELBOURNE :

Crane (Vic.) Pty. Ltd., 400-402 Victoria Street, North Melbourne.

Head Office : 33 Pitt Street. SYDNEY:

BRISBANE : C.O.N. Pty. Ltd., 180 Queen Street.





INTERCHANGEABLE STEEL BRANDS

Interchangeable Steel Branding Sets for parts numbering, etc., available in standard sizes of type from strin, to fin. Designed for roller, press or hand operation.

Steel Branding Stamps of all descriptions made to suit individual requirements.

We are Manufacturers and Importers of High-grade Marking Stamps and Equip-

Illustrated at right: Interchange-able Type Press Holder with %in-numerals.



PATENT



A. ABBOTT

595 FOREST ROAD, BEXLEY, N.S.W. Telephone: LW 3978

BARYTES

FIRST GRADE STOCKS NOW AVAILABLE

> ENQUIRIES SOLICITED

S. N. RODDA PTY. LTD.

Reg. Office and Mills: 65 BEACH STREET, PORT MELBOURNE, VIC.

P.O. Box 16, Port Melbourne

Cables and Telegrams: "ADDORNS."

Tel.: MX 4638 (3 lines).



NON-ELECTRIC PERMANENT

MAGNETIC CHUCKS



CIRCULAR AND RECTANGULAR TYPES IN ALL SIZES

Other Products include: Non-Electric Permanent Magnetic Pulleys and Separators, and Magnets for Industry in ALNICO and MAGNIMAX.

ERMANENT MAGNETS PTY.

11-13 McEvoy Street, Waterloo, N.S.W. Tel. MX 3494

Victorie: H. A. Stanger, 76 Campbell St., East Kew, E.4. Tel.; WY IS63 South Australia: Pescoe & Co. Ltd., 282 Port Rd., Woodville. Tel.; M 7127 Wast Australia: Allan Watson, 36 Barrock St., Porth. Tel.; 8 2898

(Continued from page 37.)

steel stands from 11 in. x 3/16 in. angle iron, with 14 gauge braces. Regular quantity required. Write Ref. 8168, c/o "The Australasian Ref. 8168, c/o Manufacturer."

HEXAGON BAR EXCHANGE: New South Wales firm wishes to exchange ? ton 9/16 hexagon bar, free cutting, for similar quantity 13/16 hexagon free cutting bar. Ref. 8169, c/o "The Australasian Manufacturer."

CORE BLOWER WANTED:
A New Zealand firm wants a
foundry core blower, Gibsons 1A,
2A or similar. Write to Ref. No.
8162, c/o "The Australasian Manufacturer."

MANUFACTURE AND ASSEMBLY OF LIGHT MA-CHINES — SYDNEY CAPACITY WANTED: Progressive Melbourne firm wishes to extend its operations to N.S.W., and requires Manufacturing Capacity in Sydney for complete manufacture and assembly of light machines. Work involves welding, machining and fitting. Materials required in fitting. Materials required in good supply. Constant contract assured. For further particulars apply to Ref. 8163, c/o The Australasian Manufacturer."

STEEL AND TOOL AGENCY AVAILABLE: A well-known Sydney Merchant, specialising in steels of undoubted purity and ney Merchant, specialising in steels of undoubted purity and excellence for the plastics in-dustry. Die and Tool steels, Heattreated die stainless blocks. steels, pneumatic tools, electrodes, etc. is desirous of appointing agents in the States of Victoria, South Australia and Western Australia. Any firm interested must be able to stock and cut steels to customers' require bar steels to customers ments and will be given every assistance in an advisory capa-city to establish an interesting and profitable business in these lines. Please write to Ref. No. 8164, c/o "The Australasian Manufacturer", for further particulars.

NEW FACTORY REGISTRATIONS

NEW SOUTH WALES.

R. Hogath, 220 Belmore Road, and Blakehurst-Cement Tiles Bricks.

Albion Gowns, 198 Street, Bondi-Clothing. Knit, 554 19a Rowcoe French Knit, 554 Oxford Street, Bondi Junction-Knitted

Sydney Tanning Co., Anderson

Street, Botany—Tanning.
Chamois Leather Products, 1074
Botany Road, Botany—Chamois Leather.

G. K. Garments, 41 George Street, Burwood—Clothing. Sylva Clothing, 34 Canterbury Road, Canterbury-Clothing.

WOODWORKING MACHINERY Long Table Bi i Sanders, Positive Mitraing Machines, e GILBRO ENGINEERING 79-83 Plenty Road, Preston, Via.

GASKETS AND WASHERS OF ALL DESCRIPTIONS HEAT, STEAM, OIL, AND PETBOL PACKING A SPECIALTY

Packing Materials Supplied in Bulk

PRECISION GASKET & WASHER COMPANY

SWAN STREET, RICHMOND, VIC.

Telephone: JB 1886



Cable Makers Australia Pty. Ltd., is a company with 'good connections'. Through its close association with the well-known Cable Makers Association of Great Britain - an organisation which includes some of the greatest names in the electrical field - every new idea and trend in electric cable manufacturing is closely watched and adapted to meet Australian needs and conditions. The result is a catalogue containing every conceivable type of rubber insulated eable more than equal to the best produced overseas

> C.M.A. Wires, Flexibles and Cables are made in Australia by Cable Makers Australia Pty. Ltd., at Liverpool, N.S.W. Here, modern research facilities are maintained, together with a technical advisory stal organised to help all users of the Company's products.



Backed by over 100 years of research ES-CABLES-FLEXI



COMPANY REARING

ALL CAPITAL CITIES

Adelaide Hobart

- Duncan & Co. Limited.

John Hood Pty. Ltd.

BG-SSA

Modern Cane Products, 174 anterbury Road, Canterbury— Canterbury Ro-

Clifco Engineering, 338 Burraneer Bay Road, Ca Screws and Small Discs. Caringbah-

Precision Joinery, Parraweena Road, Caringbah-Joinery.

X-L-All Blind Co., 1 Bertram Street, Chatswood-Wooden Ver-andah Blinds.

C. H. Hancock, cr. Liverpool and Waterloo Road, Chullora-

Electroplating.
Field Cabinet Works, Redman Road, Dee Wi Why-Furniture and W. E. Davidson, Reef View Waratah Parade, Dee Why-Joinery.

Eastwood Ice Works, Hillview

Eastwood fee Works, Amiriew Lane, Eastwood—fee. R. S. Osborne, Oleander Street, Enfield—Builders' Joinery. Armstrong & Swanson, 117 Mid-son Road, Epping—Joinery.

CHEMICALS-DRY COLOURS. RAW MATERIALS FOR INDUSTRY

H. BLEAKLEY & COY. (1910) PTY, LTD.

397-399 KENT ST., SYDNEY. 'Phones: BX 5761, BX 5762

Melbourne Office: H. Blackley & Com-pary (1918) Pty. Limited, C/c Agg & Daff, IS Queen Sirest, Melbourne, Thons: MU 3128. DRUGS FINE CHEMICALS POWDERED METALS

Automatic Industries Pty. Ltd., 103 Berry Street, Granville-Mechanical Engineering.

West Bros., Hamilton Street, Granville-Joinery.

S. Rollan, cnr. Milton and pringgarden Streets, Granville-Springgarden Timber and Joinery.

Pain Mfg. Co. Pty. Ltd., 27 Jersey Street, Hornsby-Venetian Blinds

Zippersheen Pty. Ltd., 19 Cri-an Street, Hurlstone Park, N.S.W.—Shirts.

Nor-Ted Engineering, 71 Forest toad, Hurstville — Mechanical Road, Hurstville -Engineering.

M. Hart, 17 Sturt Street, Kingsford-Men's Clothing.

J. Benton, 117-118 Eton Road, ambridge Park, Kingwood— Cambridge Joinery.

A. J. Adair, 19 Monro Avenue, Kirrawee-Furniture and Cabinet-making.

VICTORIA.

Jukes & Groom, rear 11 Ella Grove, Chelsea—Castinge. Allemano, L. W. A., Anderson Street, Euroa—Wicker Goods. Cole, W. J., Whute Street, Cole-raine—Upholstery. Pye Electronic Pty. Ltd., 65 Park Street, Abbotsford—Elect. Equipment.

Equipment.

Equipment.

Dick, E. & L., 477 Malvern Road, Prahran—Leathergoods. Rowe, W. J., 644 High Street, Thornbury—Textile Engineer.

Somerville Joinery & Timber Mills Pty. Ltd., Somerville Road, West Footscray—Motor Car Assembly.

Umpherston, A. C., Mitford Parade, West Footscray—Foundry.

Foundry.

Bode, N. G., Somerville Road, Bode, N. G., Somerville Road, West Footscray - Tiles and

West Foots.
Cement Art.
Hayton & Ericsson, cnr. Hanna
Hayton & Ericsson, Streets, South

Hayton & Ericsson, cnr. Hannand Kayanagh Streets, South Melbourne—Upholstery.
Whitehead Chemical Co. (Aust.) Pty. Ltd., Princss Highway, Dandenong—Rub., Chem. and Comp. Paxcrete Pty. Ltd., rear 122 Princes Highway, Dandenong—Cam Articles.

Princes Highway, Dandenong— Cem. Articles.
Smith, P. V., 171-3 Balaclava.
Road, Caulfield—Feather Dusters.
Milder & Rabinovics, 224 Balaclava Road, Caulfield—Jewellery.
Beis & Newell, 34 Cremorne
Street, Richmond—Patent Medi-

cines Eckhardt, H., Queen Street, Ararat—Bricks.



Liability.

Assets Exceed £100,000,000

FIRE - ACCIDENT - MARINE

Head Office for Australia: 26 O'Connell St., Sydney

Branch Offices:

Throughout the Commonwealth

AUSTRALIAN ADVISORY BOARD :

LIEUT.-GENERAL SIR IVEN MACKAY, K.B.E., C.M.G., D.S.O., V.D. H. C. STEINER GEORGE PATTERSON



INTERSTATE REPRESENTATIVES

Alfred Snashall, Anthon C. H. Rins & Co., Heward Cilbert A. Smooth Pty. Ltd., 78-74 Eagle Hill, off Heward Street, Trevallyn Road, Street, ERISBANK, 4LD. FERRIN.

Alfred Martin & Sons Ltd., J. F. Margraves Ltd., 98 Steam Plant Equipmen SN Hazam Street, ADE Jorvals Quay, WELLING Ply, Ltd., 2 Hunter Street LAIDE.

TON.







OMATIC SPECIALISTS

Specialise in mass producing parts from

5,000 to 5,000,000

Small size metal thread screws, helts, and note. Inserts for the Plantics, Electrical and Rubber Moulding Trades.

ELECTRO PLATING

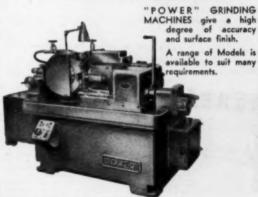
also NICKEL - SILVER - COPPER - GOLD

If you manufacture motor cars, toys, electrical goods, novelties, hardware, moustcal instruments, lewellery, washing machines, refrigerators, laws mowers, or any article that requires amal parts in quantity, it will pay you to get our expert advice and quotations. Manufacturers of Ayton Dependable Locks and Fittings for the Leather Goods Trade.

Engineering Instruments 271 Queen's Parade, Clifton Hill, Victoria, Phone: JW4775

Precision Grinding Machines

MADE IN AUSTRALIA



"Power" Centreless Grinder

PAUER & CO. PTY. LTD.

Makers of Machine Tools 8-12 Vale Street, North Melbourne Telephones: FJ 6227, FJ 4486.

WIDE VARIETY OF WELDED WORK Simplified with D.C. Machines

BY S. MANNIX, WORKS MANAGER

PABRICATED PRODUCTS (1947) PTY, LTD., PERTH, W.A.

Our works are chiefly concerned with small manufacturing and with job welding. As a result, our operations cover the welding of a considerable variety of materials both as to type and gauge.

Standard manufacturing lines include such diverse items as crab winches, portable saw benches, steel playground equipment, engine bases and irrigation spears. Additionally, our activities embrace construction of steel trailers, semi-trailers, van bodies and utilities.

For this work-and also for considerable volume of repair and maintenance work well as hard surfacingwe employ Lincoln D.C. welding machines and have found them best snited to economie working under our conditions. In point of fact, much of the work we undertake would be impossible but for the extreme versatility of are control, which is a feature of these welding machines.



6-foot all-steel fabricated guillotine. Blades hard faced with Toolweld.



30-ton capacity semi-trailer arc welded with Fleetweld 7. Welding current was supplied by Lincoln S.A.E. 200 D.C. Welder.

The illustrations depict in some measure the range of our opera-tions. The crab winch has a fabri-cated rolled steel frame and drum. The main gear and pinions are cast iron and are welded respeccast iron and are welded respec-tively to the winding drum and shafts with Ferroweld—an elec-trode with the special charac-teristics for welding east iron. This design of winch is stronger, more rigid and considerably lighter than conventional cast iron winches and lends itself to economical production.

In the same category is the guillo-tine. Here again are welded rolled steel construction provides the frame with the rigidity needed for guillotining operations. Here again we adopted the use of a special electrode—Toolweld 60— for building up the cutting edge of the blade with high speed tool

With a normal welding range of 40-250 amps., our Shield-Arc 200 amp. welders are called upon to weld everything from heavy 30-ton trailers, such as the semi-trailer illustrated, which is welded using 7/32 in. and 1/4 in. Fleetweld 7 electrodes, to the 17-gauge seamless steel tubing used in large van bodies, etc., requiring 3/32 in. Planeweld No. 2 electrodes. All in all, we have found trodes. All in all, we have found that no matter what we run up against—welding stainless steels, aluminium, high tensile steels, or mild steel, our Lincoln Welders



Welding cast iron goar and to rolled-steel drum and shaft of crab winch using Ferroweld electrodes

can be set to match the job without compromise for economical quality welding at fast welding speeds.

Full details and technical data on Full details and technical data on the use of Lincoln Shield-Arc D.C. Welding Machines and on Fleet-weld, Ferroweld, Planeweld and Toolweld electrodes will be gladly supplied by The Lincoln Electric Co. (Aust.) Pty. Ltd., Alexandria, N.S.W. Telephones LA 5187, LA 1288 or by the Lincoln Office in some State. in your State.

APPRECIATIONS WE APPRECIATE Dear Sirs,

We should like to thank you for the article you recently published in the "Manufacturer" on the activities of our firm.

It may be of interest to you to hear that we have already had several inquiries regarding the sisting attachment, including three from New Zealand.

Again thanking you for your efforts on our behalf. Yours faithfully

COX & BATES, Melbourne

MECHANISATION OF WHARVES

The Melbourne Harbor Trust is to proceed immediate; installation of £70,000 worth of mechanical handling equipment on the Melbourne for use on the Melbourne wharves. It includes twelve mobile cranes of three tons capacity and twenty-two fork lifts of 71 tons capacity. The equipment is to be used chiefly in wharf storage sheds and will virtually double the pool of mobile equipment available for hire from the Trust by stevedores and carriers, bringing the number of mechanical cargo handling aids in the port to upwards of two hundred. Part of the equipment is to be delivered immediately, the balance in six months.

According to reports, most of this equipment is to come from over-seas, the remainder being made locally. While, therefore, "The Manufacturer" congratulates the Melbourne Harbor Trust on its admirable steps to modernise the port of Melbourne, it cannot refrain from expressing its astonishment that practically the whole purchase was not made in Australia. For Today a number of Australian engineering plants are turning out the highest standard mechanical handling equipment.

APPOINTED NOYES BROS. SALES MANAGER.

Mr. Alan M. Harrison, formerly manager of the Electrical Supplies Department Noyes Bros. bourne) Ltd., has now been appointed General Sales Manager of the Company.

TARIFF BOARD INQUIRIES.

The Minister for Trade and Customs has referred two new matters to the Tariff Board for inquiry and report in accordance with the Tariff Board Act, 1921-1947: 1. Centrifuges—(a) Whether centrifugal machines (centrifuges) should be removed from the provisions of entry under Tariff Item 418 (F); (b) What rates of duty should be imposed on centrifugal machines (centrifuges) if such be removed from the provisions of en-try under Tariff Item 418 (F). 2. Spades—What rates of duty should be imposed on spades which are now charged with duty under Tariff Item 219 (B) or 449 (A) (1).

These matters will form the subjects of public inquiries at a later

"IYPFIT"



THE LATEST IN VEE PULLEYS

"A" "B" or "C" SECTION



SUPPORTERS

"B" CONVERTERS

TONVERTERS

SCHRORTING



ADAPTABLE

- One or more grooves, as required.
- Number of grooves can be easily increased or decreased.
- Speedy conversion from one section to another.

Stocks of bosses always on hand-Blank or Bored and Keywayed

Obtainable from your local dealer or from

ZYPFIT PULLEYS PTY. LTD.

RIVERSIDE AVENUE, SOUTH MELBOURNE, S.C.4.

'Phone: *MX 2251.



ROTO-FINISH

The Engineered Process for Mechanical

Finishing and Deburring

Roto Finish is a production process for deburring and finishing parts employing a controlled rotary action with special mineral chips and compounds. Roto Finish is entirely mechanical — eliminates tedious manual operations — handles parts in bulk loads and requires no skilled labour.

ECONOMY.—One operator handling several machines may replace a score of skilled employees using deburring tools, files, belts and wheels.

PRODUCTION.—Roto Finish speeds up production deburring and finishing operations—large quantities of parts are processed in one operation in a fraction of the time required by manual methods.

TAKE ADVANTAGE OF OUR FREE SAMPLE PROCESSING



A. FLAVELL PTY. LTD.

283 Hoddle Street, Collingwood, Victoria

AUSTRALASIAN LICENSEES STURGIS PRODUCTS CO., STURGIS, MICHIGAN, U.S.A.

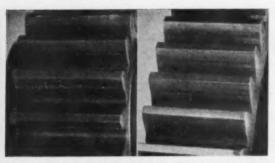


Fig. 1. Wear on gear and pinion having unmodified tooth profiles. Although the teeth were accurately hardened and shaved, failure occurred after a few million cycles of operation. Such tooth failure can frequently be corrected by profile modification.

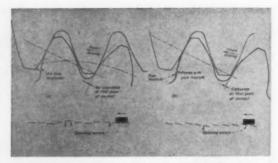


Fig. 2. Effect of spacing errors with true involute profile (A), and with modified involute profile, (B). In (A) there is no clearance at the first point of contact. Clearance obtained at (B) by pressure angle modification minimizes tooth spacing errors.

Modification of Gear Tooth Profiles

Changing the involute profiles of heavily loaded gears to reduce noise, interference and wear

When gears are operated under severe torque loads, there are frequently signs of distress on the tooth faces. Under moderate load, the gears will usually operate for long periods of time with no measurable wear. As the load is gradually increased, the first signs of wear frequently occur at the first point of contact. This wear resembles mild scuffing or etching, and can only be detected by a trained eye. The rate of wear may be as slow as 0.0002 in. per million cycles, which, although apparently small, may be dangerous and deadly if the gears are designed for several hundred million cycles or more.

A FURTHER increase of load on the set will often cause a second region of wear to begin at the last point of contact. This progresses slowly and requires sensitive measuring machines or a keen eye to detect it in the first few million cycles. A still further increase in load often causes pitting to start in the region of the pitch line of the driver and sometimes on both members; frequently scuffing and galling also occur at about the same load.

If a gear set that is loaded heavily enough to cause wear at the first point of contact is operated for a prolonged period of time, the gradual wearing away of the tooth profile will ultimately cause the gear to lose its smooth involute action; finally, the pitch line region will be overloaded and subject to shock loads which will break it

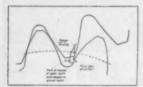


Fig. 3. Path of motion of a gear tooth tip as it enters mesh (pinion driving). Tooth of the gear has a cutting motion with respect to the flank of the pinion.

down. As a general rule it can be said that unchecked wear at any point on the tooth profile will ultimately cause tooth failure.

A set of gears that were tested under heavy load with accurately shaved and hardened teeth but with no tooth profile modification is shown in Fig. 1. The destructive wear at the tips and roots of the teeth is clearly visible. In the region of the gear pitch line there is no wear, but in the region of the pinion pitch line the final destructive pitting-type of wear has begun.

Such signs of wear often are an indication that greater load carrying capacity and longer life can be obtained by modification of the tooth profiles. In general, profile modifications are made (1) to minimize probable tooth spacing errors; and (2) to eliminate tooth interference due to deflection under heavy load.

CHANGE IN PRESSURE ANGLE.

When spacing errors are present in gear teeth, some teeth are spaced too close together and others too far apart. Suppose one pair of teeth are in contact and a second pair are just ready to start making contact. If the two teeth on the driver are too close together or the two teeth on the driver are too far apart, the second pair of teeth will make contact prematurely and there will be a certain amount of shock and noise as they contact. Errors in profile also cause occasional pairs of teeth to enter mesh with a shock.

It has been found by experience, says D. W. Dudley, in "Product

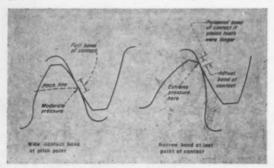


Fig. 4. Modifying the pressure angle to minimize a cutting action on the pinion at the first point of contact concentrates the load over a narrow band at the last point of contact. Relief of the tooth tip or root is the logical modification.

Table I—Gear and Load Data for Sample Gears

Gear Data			
Dimension	Pinion	Gear	
No. teeth. Diametral pitch Pitch dia, in. Addendum, in. Outside dia, in. Pressure angle, deg. Face width, in.	25 5 5.000 0.200 5.400 20 1.0	96 19.200 0 200 19 600 20 1 0	

LOAD DA	LOAD DATA		
Speed	= 4000 rpm on		
Continuous load	= 1500 lb per in		
Cycles at continuous load Maximum load			
Cycles at max load	of face = 20 million		

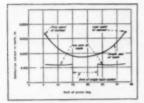


Fig. 5. Tooth deflection at a torque of 5,000 in.-lb. for teeth of 20 deg. involute spur gear set, having a diametral pitch of 5 and a 20.80 speed ratio.

Engineering," that gears can be made to run more quietly by making the involute curve of the driver slightly plus or the involute of the driver slightly plus or the involute of the driven gear slightly negative. As indicated in Fig. 2 (A) true involute curves provide no clearance at the first point of contact. The tooth action is somewhat analogous to sliding a brick over a cobblestone street. If the driving pinion has a slightly plus involute, there is clearance at the first point of contact. The tooth action in this case is similar to sliding a brick down a shingled roof. Therefore, it is reasonable to expect quieter and smoother running gears with a small amount of pressure angle modification in the right direction than with a true involute profile.

The amount of pressure angle modification for best results depends on the magnitude of errors as well as the speed and load conditions under which the set is expected to operate. For instance, if spacing errors are on the order of 6.0005 in. tooth to tooth, and profile errors are also about 0.0005 in. It is reasonable to start testing

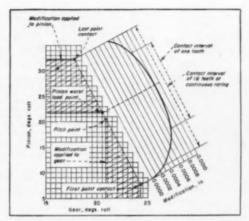


Fig. 7. By plotting the degrees roll of the gear and pinion at the first and last point of contact and connecting these points with a straight line, a graph is obtained for charting the tooth modifications.

gears with a total profile modification in the range of 0.0005 to 0.001 in. Actual test experience then will indicate whether to slightly increase or reduce the amount of this modification.

TIP AND ROOT RELIEF.

Even if there are no errors in spacing or profile on gears that are operated under heavy load, the deflection of the teeth may cause a second pair of teeth to enter mesh too soon. This is particularly damaging under heavy load conditions because of the peculiar action of a tooth entering mesh.

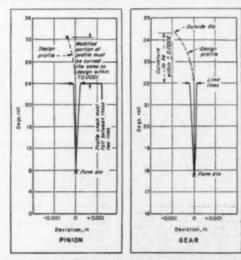


Fig. 8. Specifications for modifying the addendums of the gear and pinion having the dimension and operating under the conditions shown in Table 1. All modifications could have been put either on the gear or on the pinion.

The path of motion of a gear tooth tip as it enters mesh when the pinion is driving is shown in Fig. 3. The gear tooth tip actually follows a path of motion that tends to cut metal off the pinion. Under heavy load, there is tooth deflection, and the gear tip does not come into mesh just tangent to the pinion profile. Instead, it tends to cut a chip of metal off the pinion.

On first thought it would appear that the logical modification to overcome the tendency for cutting at the first point of contact would be to use a pressure angle modification. This remedy is not much good, however, because a pressure angle change to relieve the first point of contact puts additional load on the last point of contact.

This is indicated in Fig. 4, which shows in an exaggerated a comparison between the load con ditions at the pitch line of a pair of gears and at the last point of contact. In the middle of the tooth profiles, the elasticity of the metal causes the profiles to deform so as to spread the pressure over a fairly wide band of contact. At either the last point of contact or the first point of contact, the tip of the tooth causes the band of contact to become narrow with a severe concentration of load. Thus, it can be seen that heavily loaded gears will not be helped by a pressure angle change which would protect the first point of contact but overload another vulnerable spot-the last point of contact. Instead, the tips of the gear teeth or the roots of the pinion should be relieved to minimise pressure at both these points.

MODIFYING TEETH FOR HEAVY LOADS.

The recommended procedure for modifying gear teeth for heavy load is as follows:

 Determine the deflection curve of a single pair of teeth as accurately as possible.

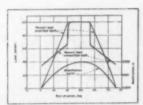


Fig. 6. Per cent. load carried by modified and unmodified teeth on the pinion (or gear) of the gear set. for which the deflection curve, Fig. 5, was obtained.

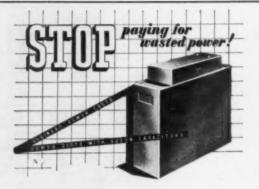
- Modify the tip of the driven gear tooth or the root of the driving pinion tooth so that little or no load is carried at the first point of contact.
- 3. Modify the pinion tip or the gear root so that a high load is not carried at different points of con-
- 4. Make the shape of the modifications such that reasonably uniform angular velocity is obtained at the most critical operating load.
- 5. After the best theoretical design has been worked out on paper, make actual tests of the gears to see if the original modifications should be slightly increased or decreased.

Determining the actual deflection characteristics of heavily loaded gears is necessary because it is on such characteristics that the amount of profile modification must be based. The results of deflection test on a pair of true deg. involute spur gears having ratio of 4 to 1 is shown in Fig. A constant load of 5000 lb-in. was applied, and the deflection was measured at different points of contact.

Every other tooth was removed from the gear so that deflection could be measured for a single pair of teeth. Then calculations were made to determine the deflection curve for a gear and pinion having all their teeth. In this example, the base pitch was equivalent to 18 degs. roll. For instance, when a



Fig. 9. Condition of gear having modified tooth profiles after prolonged operation under severe loads. Grinding marks are still visible. Width of tooth face is approximately 1.0 inch.



Power Factor Correction Capacitors can, and do, reduce electricity costs where electricity is bought from supply authorities at maximum demand rates. The saving on total costs of Ducon Power Factor Correction Capacitor Installations ranges from 40% to as high as 300% per annum.

Coincidental with the manufacture of Power Factor Correction Capacitors, the Company carries out complete technical surveys of plants and systems and furnishes information and advice appertaining to power factor correction on request and absolutely FREE OF CHARGE.



YOUR FREE COPY
of
DUCON

power-factor correction

BULLETIN

DUCON CONDENSER LTD.

73-91 BOURKE STREET WATERLOO, N.S.W.

Please forward me without obligation my FREE copy of "Ducon Power Factor Bulletin."

NAME

ADDRESS

pair of teeth was in contact at 10 degs. roll, another pair was in contact at 28 degs. roll. By proper calculation, the stiffness constants for a single pair of teeth at 10 degs. and 28 degs. roll can be combined to determine the combined defection for two pairs of teeth at these points.

In the example shown in Fig. 5, contact starts at 5.5 degs. roll of the pinion. Since tooth contacts are separated by an 18 deg. interval, a second pair of teeth would be in contact at 23.5 degs. (18 deg. + 5.5 deg.). When contact on one pair of teeth reaches 15 deg. contact ends on the second pair of teeth since they reach the last point of contact at 33 degs. (18 deg. + 18 deg.). In the region between 15 deg. and 23 deg. only one pair of teeth can be in contact. In Fig. 5 this region is shown as the "sone of single tooth contact."

Once the deflection curves have been calculated, or determined by test, it is possible to plot the per cent. load carried by a pair of teeth as it rolls through mesh. Suppose one pair of teeth have just started to contact at 5.5 degs. roll and a second pair is in contact one base pitch ahead at 23.5 degs. roll.

Since the deflection constant of the first pair is 0.00335 in. at 5000 lb-in. torque, and the deflection constant of the second pair is 0.0019 in. at 5000 lb-in., the load is 0.0019

First pair, $\frac{}{0.00335 + 0.0019} \times \frac{}{0.00335 + 0.0019} \times \frac{}{0.00335}$

Second pair _____ ×

5000 = 3200 lb.-in. (66% load).
The results just calculated show that this pair of teeth would carry 34 per cent. load at 5.5 degs. roll and 66 per cent. load at 23.5 degs. roll. By making calculations in this manner the per cent. load can be plotted for all positions of the pinion teeth. In Fig. 6, the curve labelled "per cent. load, unmodified teeth" shows the result of such calculations.

Suppose that the gear designer wished to modify the profile of the pinion (or the gear) so that the teeth would enter and leave mesh with no load. It would be possible to accomplish this if the involute of the pinion were 0.0019 in. higher at 22.5 degs. roll. Going back to the defection curve in Fig. 5, it will be noted that a single pair of teeth will carry full load at 22.5 degs. with 0.0019 in. deflection. The modification curve shown in Fig. 6 is calculated to give no load at 5.5 degs. roll and 33 degs. roll. Based on this curve, the curve "per cent. load, modified teeth" can be determined.

The above example illustrates a method for determining tooth modifications for heavily loaded teeth. In actual practice, the modification would probably not be as large as that shown in Fig. 6. Although this modification would give a very smooth running pair of gears at full load, it would run rough at light load. Also, the tips of the teeth would get by without doing any work, but the middle of



- * MACHINE ENGRAVING * ELECTROPLATING
- * BADGES * MEMORIAL TABLETS
- * BUILDING PLATES * METAL STAMPINGS * NAMEPLATES * STREET SIGNS

INR THE BOULEVARDE & THE BROADWAY

SCIENTIFIC INSTRUMENT MAKERS

Experts in all motion picture mechanism. Fine gwar cutting a specialty. (Spur, helical, hevel, racks, worms and wheels). Reduction Gearboxes, Specialter and Carboxer Parts. Small Motor Fittings. Fine Mechanical Work. Fatents Developed.

C. ALGER & SON

25-29 MARKET LANE, (of 122 Bourhe Street) MELBOURNE 'Phone: JK 1278

GENERAL ENGINEERS SHEET METAL WORKERS

B.S.F. PTY. LTD. 9-11 David Street, BICHMOND, E.1, Victoria Tel.: 1A 2004

GASKETS

ALL SIZES

Made From Specifications

ONLY BEST QUALITY MATERIALS USED

QUOTATIONS GIVEN FREELY

C. H. ROBERTSON

186-185 PARRAMATTA RD.,

'Phone: CAMPERDOWN,
LA 2009 N.S.W.

FACTORY EQUIPMENT

"BURNERD" Lathe Chucks
"MERCER" Dial and Cylinder
Gauges

"DING DONG" Hacksaw Blades

"MYFORD" Lather "COLEY" Thermometers

PAUL WITZIG & CO. PTY. LTD. 85 York Street, Sydney, N.S.W. Telephone: BX 3147



No.3 BACKSTAND IDLER

Hammond Product. made under licence for ELIZA TINSLEY PTY, LTD. Provides a ready, economical means of converting set-up wheels on grinding and polish-ing equipment into high production machines Abrasive Belts.

BELTS ARE BETTER because of the

- I. Uniform grit distribution
- 2. Cooler cutting
- 3. Cushioned grind



(Showing No. 3 BACKSTAND in operation)

Made possible by the precision-engineered heavy duty Hammond Backstand Idler. moving parts accurately machined, therefore vibrationless operation. Belt changes easily effected.

Installation Costs low and no re-instruction of operators required.

For finer finishes on metal, plastic, bakelite, use Abrasive Belts — in conjunction with HAMMOND BACKSTAND IDLERS!

TINSLEY

the tooth profiles would have to carry heavier loads.

SAMPLE PROBLEM IN TOOTH MODIFICATION.

The principles involved in tooth modification probably can be best illustrated by a sample problem. Let us, says Mr. Dudley, assume that overall design limitations require a set of spur gears to meet the conditions shown in Table I. This data indicates that the gears are heavily loaded and are being operated at a pitch line velocity of 5,236 ft. per minute.

The first step is to calculate the diameters at the first and last points of contact, and the tooth contact ratio. The following re-sults are obtained:

Some products of THE



Air cylinders . Air Squeeze riveters . Air valves . Air-aps . Presumatic preases machines . Cement Sludge pumps . Hydhoceter pumps . Diagi . Rivet spinning tool matic intrace. Rivet spinning tools . . Preu-tic furnace door operators . heral purpose thrustors and power phragms for mechanising industry

POWER-ELTOR and NEVANDER Industrial Equipment

Form diameter of pinion, df = 4,739Form diameter of gear, Df = 18.890Contact ratio. Mp = 1.78

Contact ratio, Mp = 1.73Since the pinion is driving, contact will start at 4.739 in. diameter and end at 5.400 in. diameter. These diameters are converted to degrees roll either by reading a graph or by solving the following equation.

Degree roll = 0, =

 $\vee D_1^{\ 1} = (D \cos \phi)^2 \times \frac{\partial 1.500}{D \cos \phi}$ Where

D. = Diameter at which degree roll are desired.

D = Pitch diameter. e = Pressure angle.

The diameters at the first and last points of contact converted to degrees roll are:

DEGREES ROLL

	First point of contact.	
Pinion	7.5°	32.5°
Gear	24.3°	17.8°

The next step is to construct a graph for charting the modifica-tion. The degrees roll of the gear is plotted against the roll of the pinion as shown in Fig. 7. In making a chart of this type, the first ing a chart of this type, the first step is to plot the degrees roll for the pinion and gear at the first and last points of contact. Then a straight line is drawn joining the points. It will be noted in Fig. 7 that this line strikes the point 20.85 degrees when read on either the vertical or horizontal scale. This point corresponds to the condition of pitch point contact. Below it is a triangular shaded area; all of the

BROWN & SHARPE MACHINE TOOLS



UNIVERSAL and PLAIN MILLING MACHINES

448-452 Bourke Street

Melbourne, MU 6531, 465 Kent Street, Sydney

UNIVERSAL and PLAIN GRINDING MACHINES

AUTOMATIC SCREW MACHINES

TOOL and CUTTER **GRINDERS**

SURFACE GRINDERS



161 CLARENCE STREET, SYDNEY. Tel.: BX 3131 (7 lines).

MANUFACTURING ENGINEERS

COMPRESSION MOULDERS, TOOL AND DIE MAKERS, PRESS WORK, Etc.

ACME ENGINEERING CO.

DREWERY LANE, MELBOURNE.

Cent. 2594.

EXPORTERS — IMPORTERS

GUTWIRTH & SONS

PTY. LTD. 296 Collins Street MELBOURNE, VICTORIA Telephone: Cent. 4618 modication applying to this region is intended to be applied to the gear addendum. Another shaded region is shown above the pitch point; the modification for this region will be applied to the pinion addendum.

The amount of modification to be used will depend on the deflection curve for the pair of teeth. Preferably this curve should be established by precise test measurements in the laboratory as previously shown, or by careful calculations. It is not possible to spend the time and effort to make a precise determination of the deflections, the deflection at the worst load point on the pinion may be approximated by the following formula, assuming that the teeth are 20° pressure angle, standard addendum, and have a whole depth great enough to permit a full radius fillet, which will improve the beam strength of the tooth.

Total deflection = $P \times 3.3 \times 10^{-1}$ where P equals the tangential driving pressure in lb. per in. of face width.

In the example being considered this would mean that the deflection would be 0.0011 in. for the maximum load and 0.0005 in. for the continuous load. If no modification were provided this would mean that under maximum load the gear would try to remove a chip of 0.0011 in. thickness each time it engaged the pinion flank at the first point of contact. Quite ob-viously this would be a dangerous situation and premature failure could be expected. This failure might follow the chain of events of first involute form destruction, then rough running and pitch line pitting, and finally tooth breakage. Or it might be that the removal of metal at the pinion flank and the fretting corrosion in this area ould set up a region of localized stress concentration which would cause the teeth to fail quickly by direct breakage. The exact mechanism of failure would depend on many factors such as kind of lubricant, temperature, inertia of drivricant, temperature, inertia of circular ing and driven apparatus, surface hardness of teeth, and fatigue strength of teeth. It is beyond the scope of this article to discuss all these factors in detail.

If enough modification is pro-

If enough modification is provided to completely relieve the tips of the teeth under maximum load, the set would run rough under continuous load. Since the set must run 200 million cycles under continuous loading conditions it is very risky to have it running rough. If only enough modification is provided for the continuous load it may not relieve the tips sufficiently for the maximum load. In Fig. 7 there is a point plotted

and labelled, "pinion worst load point". This point is located at 21.8", just one tooth interval beyond the first point of contact on the pinion. For the example chosen, one tooth interval corresponds to 4.4" roll of the pinion. In making up the modification chart, a line was drawn normal to the worst load point. Since maximum deflection will occur at this point, the modification curve should have its high point also at this point. The (Turn to page 50.)



Streamline Production with DUREX' TAPE



THE "DUREX" MANUAL BOX SEALER seals boxes, packages and bags instantly with clear, strong "DUREX" Tape—the transparent tape that seals without moistening. It fastens securely yet does not detract from your package design. Streamline your production . . . cut packaging costs . . install a "DUREX" Box Sealer today!



Whether it is a sealing, holding, or mending job, "DUREX" Tape will do it. It has dozens of uses in every shop, office or factory. The heavy duty dispenser, scientifically weighted for one hand operation, is for use with 2,592 inch rolls of "DUREX" Tape. 15/- sach, plus tax. Tape extra.



SEAL CANS WITH "DUREX" TAPE. Here is the inexpensive way to make cans, bottles and other containers airtight. "DUREX" Tape gives you high stretch in both directions to conform snugly to irregular surfaces. Use it wherever you need a seal that is airtight and resistant to moisture. We'll be glad to suggest ways in which our tapes can speed up your operations, save you money. No obligation.

SEALS WITHOUT MOISTERING - TRANSPARENT AS GLASS

DUREX Collulose TAPE

Made in Australia by

AUSTRALIAN DUREX PRODUCTS PTY. LTD., LIDCOMBE, N.S.W.

your Safequard ACAINST OIL SEEPAGE ...



SOLE DISTRIBUTOR

CEELX PTY. LTD.

571 VICTORIA ST., ABBOTSFORD, VICTORIA. Telephone: JA 4802

type onten - to hart at &

The 'SAVING' Margin

GUARD against unforeseen wear and tear by installing E.W. Malleable Fittings. They have

ample reserve strength . . . a scientifically calculated margin that saves time and cost in maintenance, saves breakdowns and replacements. E.W. Malleable Fittings are precision - finished and standardised . . accurately aligned and easy to instal. All are interchangeable, possessing just the right degree of ductility . . . heat treatment being electrically con-Technical data and advice on request.

INSTALLATIONS

AUSTRALIAN - MADE MALLEABLE FITTINGS

E.W. FITTINGS, LTD.

103 YORK STREET, SYDNEY

ELECTRO-TIN PLATING

OUB Plating Department can quote you for your requirements in Electro-tin Plating of any desired thickness. Our modern equipment has a capacity of up to 36 square feet of plated surface and we specialise in the plating of tubing inside and out up to 20 feet in length. For further particulars and quotes, 'phone Mr. Yeomans, FW 3167.

GORDON BROS. PTY. LIMITED

120 UNION STREET, BRUNSWICK, N.10.

ENTERPRISE OIL BURNER

BURNS BUNKER FUEL OIL



Semi-automatic and Manually controlled oil burners for all purposes.

Efficient, economical conversion of all to heat engineered for reliable service from earlier pioneer developments.

MANUFACTURED BY

Automatic Heating Appliances Pty. Ltd.

41-43 PARK STREET, SOUTH MELBOURNE.

Telephone: MX 2702.

(Continued from page 48.) difference in the modification curve between the worst load point and the first point of contact will indicate how much clearance is provided to compensate for teeth deflection to that a tooth just entering mesh will enter without shock. For instance, in Fig. 7 there is a modification difference of 0.0009 in between these two points. With a full load deflection of 0.0011 at the pinion worst load point the modification provided of 0.0009 in. would permit a tooth to enter mesh with an interference of only 0.0002 in under the maximum load.

A compromise modification intended to provide protection under maximum load, but smooth operation under continuous load is shown in Fig. 7. This modification curve is proportioned so that it will accomplish the following if the gear teeth are precisely made to the modification curve.

1. At little or no load, there will be an involute error of only 0.0001 in. in the length of roll correspond-

ing to one tooth interval.

2. At the continuous load rating, the duration of contact will amount to 1.6 teeth. There will be almost no load at the first point of contact and light load at the last point of contact. The angular velocity will be quite uniform.

3. At the maximum load rating, the duration of contact will amount to the full 1.73 teeth. There will be a very mild load at the first point of contact and a moderate load at the last point of contact.

Specifications for the pinion and gear profiles in the example just considered are given in Fig. 8. The dashed curve shows modifications exactly as called for on Fig. 7. It will be noted that only the addendums of each member are modified. The modification could have all been put on the pinion with the gear left true or it could have been all put on the gear. The method shown of splitting the modification between the gear and pinion but putting it on the addendums only has been favoured in some shops.

The limit lines allow the slope of the true part of the pinion to vary between + 0.0002 and - 0.0001 in. On the gear, the limit lines run between + 0.0001 and - 0.0002 in.
With this slight amount of unbalance, most of the profile error comes in the most favourable direc-The modified portion of the tion. profile is held to the design curvature within \pm 0.0001 in. on the pinion and \pm 0.0002 in. on the gear, These profile limits are very close as far as usual gear shop practice goes and yet it can be seen that allowing even this much tolerance will tend to make it doubtful whether all sets of gears will perform as expected. A very high degree of precision in manufacture is quired to make profile modifications effective.

A gear that was operated under more severe conditions of load than that given in the preceding example is pictured in Fig. 9. Extensive profile modifications were made to protect the teeth. The photograph of the gear taken after prolonged operation of the set shows that the grinding marks are still clearly visible. Only faint and scattered traces of wear are apparent at the first point of contact, which in this case is the gear tooth tip. Involute checks of pinion and gear showed no measurable wear.

TRANSFERS

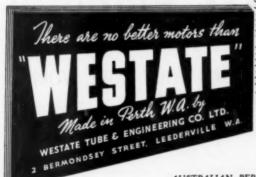
are best and cheapest for BRANDING and

DECORATING
Machinery, Planes, Radies, Sports
Goeda, Oycles, Windows, etc.

J. H. PRESTON Pty. Ltd. 15 FOREST RD., HURST-VILLE, N.S.W.

Manufacturers of
Water Side and Goldsiss
Transfers: also
CERAMIO TRANSFERS
for Enamiled Issa, Pottery & Gian.
Established 1918. "Phono: LW SEE.

Every feature of these "Westate" Electric Motors has been incorporated with the specific intention of ensuring maximum efficiency with maximum economy in operation, plus longest possible trouble free life.





AUSTRALIAN REPRESENTATIVES:

N.S.W.: Bertram Hollingsworth, 79 Pitt Street, Sydney. VIC.: J. R. McCarthy & Co., 430 Little Collins Street,

Melbourne. S.A.: Radio Wholeselers Ltd., 24-26 James Place, Adelaide.

QLD.: K. H. Dore, 153 Edward Street, Brisbane.

TAS.: Electrical and Engineering Supplies Pty. Ltd., 35 St. John Street, Launceston.

AUSTRALIAN BELTINGS for AUSTRALIAN INDUSTRIES

TRANSMISSION

"SAVES ENDLESS TROUBLE"



IDEAL FOR SHORT CENTRES



RUBBER BELTINGS

"THE BEST BY TEST " SUPER LEATHER BELTING

00000000 DURABLE-FLEXIBLE-RELIABLE



'Phone: MW 1391 (5 lines) 268-270 GEELONG ROAD, WEST FOOTSCRAY, VICTORIA.

INTERSTATE BRANCHES :

John O'Neill & Co. Pty. Ltd., 496 East Street, SYDNEY, M.S.W. Atkins Limited, 55 Firic Street, ADELAIDE, S.A. Queensland Machinery Co. Ltd., 142 Albert Street, BRISDAME, Q'LAND.

CRES : (W.A.) Ltd., 894 Hay Street, PERTH, W.A. J. R. Green Pty. Ltd., 114 Charles Street, LAUNCESTON, NTH. TAS. T. J. Case & C. Ltd., 74 Elisabeth Street, ROBART, STH. TAS.

STEEL WIRE ROPES For ALL Purposes



Manufactured at Newcastle, N.S.W., by

THE AUSTRALIAN WIRE ROPE WORKS PTY. LTD.

PRICES AND PARTICULARS FROM THE COMPANY'S DISTRIBUTORS:

NEW SOUTH WALES-

Bullivants' Aust. Co. Pty., Ltd., 63-64 O'Riordan Street, ALREANDRIA.

J. R. Reid & Sons, 481-403 Kent Street, SYDNEY.

WEDTORIA-

Ingils, Smith & Co. Pty., Ltd., Spencer and QUEENSLAND— Flinders Streets, MELBOURNE.

James Munday & Co., 894-6 Louedale Street, MBLBOURNE.

WESTERN AUSTRALIA-

J. & W. Bateman Pty., Ltd., PERTH and FREMANTLE.

Harris, Scarfe & Sandovers, Ltd., Central Hay Street, PERTH. McLean Bros. & Rigg, Ltd., 106 Murray Street, PASMANIA-PRETE.

The Engineering Supply Co. of Aust., LAS., NEW ZEALAND—Blward Street, BRISBANE. John Reid & Nephews, 28-36 Charlotte Street, BRISBANE.

SOUTH AUSTRALIA-

Harria, Scarfe, Ltd., Gronfell Street, ADELAIDE. A. Noble & Son, Ltd., 79 Gronfell Street, ADELAIDE. St. Treliving & Son, Ltd., Light Square, ADMLAIDS.

R. R. Rez & Son Pty., Ltd., 35 Morrison Street, HOBART,

Mr. G. R. Hyde, 35-37 Johnston Street, WEL-V.ING/POW



School for Executives

Opening Address of the President, Sir Herbert Gepp

This School for Executives (held at Geelong on May 19, 1950—Editor) devoted itself to the subject of "Management-Employee Relations." A number of addresses were given by Leaders in their various spheres. Discussion Groups considered: 1. In what ways does Employee Participation stimulate co-operation? 2. In what ways can the Trade Unions contribute to Management-Employee Co-operation? 3. Incentives in relation to Co-operation.

In his opening remarks, Sir Herbert Gepp pointed out that the first of these Schools was held in January-February, 1949. Although the subjects to which the Discussion Groups gave their attention were (a) Organisation, (b) Finance, (c) Marketing, (d) Methods Improvement, it is interesting to note that the greater number of the main addresses to the School dealt directly with the subject of "Employer-Employee Relations."

"It is desirable," said Sir Herbert, "that we should have in our minds continually certain thoughts associated with our principal subject. These include:

- "1. The historical background.
 "2. Inherited impressions and
- experiences.

 "3. The rapid developments nationally and internationally to which we are the heirs and assigns, whether we like them or
- "4. The development of two distinct theories of Government which are in direct opposition and which are rapidly changing the whole aspect of world affairs.

"We have the historical records of high conditions of civilisation in some of the river basins of Asia and Europe, based almost entirely upon slave labour. These systems led to a brilliant flowering of the mental activities of the cream of the upper stratum. Of such is history. In the nineteenth and twentieth centuries the world picture of the contract of the cont

ture had changed entirely. To-day we see the world in its human and economic aspects torn widely apart by two views of human development.

- "I. The raising of the general standard of knowledge and living by the efforts of a majority of the people the so-called democratic vision.
- "2. The same objective, but through the dictation of a comparatively small number of people controlling and directing the attitude of mind and the productive activities of most of the people.

"We of the democratic world are endeavouring to follow—perhaps somewhat blindly—the objective of raising the standard of vision, knowledge, education and living of the majority of our people by a system of compromise, as compared with the so-called Communistic policy under which there is a dictation by an all-powerful minority.

"The Democracies are striving to establish a sense of common purpose so that there will be a logical understanding of social objectives by all sections of the nations.

"We have the following facts to which we must give due thought:

- "(a) The primary objective must be a better deal for everyone and a higher standard of living for all.
- "(b) The menacing as well as the promising aspects of the tremendous scientific

developments of the last

- fifty years.

 "(c) The dangers inherent in aggressive action by the opposing system of Government.
- Government.

 (d) The certainty that no real solution of the increasing problems of democracy can be achieved without continual review; and full recognition of the basic causes of internal stress.
- "(e) Study of these basic causes must not overlook the spiritual, mental, and physical reactions of the human beings concerned.

"I want to paint with a broad brush, the national and international atmospheres, to draw attention to the importance of having in mind that no country can to-day live unto itself—indeed, it must realise that its individual existence is conditioned by its relation in many important respects to other nations. We must note the limitations imposed on any one nation by world affairs and then study the basic causes of the problems under discussion and the extent to which these basic causes apply only nationally, or also internationally.

"I hope you will reread the published report of the proceedings of our School in January-February, 1949. If you have not a copy, it is available for purchase at the College office.

"Sixteen months ago I drew attention to the dangerous condition of world affairs. I said that, whilst numbers are important, quality and character, determination, consistent lasting courage and knowledge are more important. I said that we were met for communion, to take stock of ourselves and to develop and co-operative education. Nothing that I said sixteen months ago needs retraction or modification. All that it needs is more emphasis. The clouds on the international horison are thicker and more menacing. It may help us all to take a brief review.

"What has hangened in the last

"What has happened in the last eighteen months? The prospects of the success of the United Nations have not improved. Russia and its satellites have walked out of meetings at frequent intervals. It would appear that, unless this group gets its own way, we have to face the alternative of carrying on as a group of nations of democratic persuasion—in other words, as the representatives of the nations opposed to those of Communistic persuasion. It has been suggested that Russia will never give up the advantage of the United Nations as a sounding board reaching all parts of the world. We must wait and

"Every effort that has been made to reach a basis of agreement between the Communistic powers and the Democracies has failed. In other words, co-operation for peace and constructive development on a world basis has not been achieved. The potential horrors of the use of the atomic bomb have been in-

(Turn to page SE.)



AUSTRALIAN LICENSEES FOR:

A.I. Electric Welding Machines Ltd., of London and Inversess, and Scially Electric Welding Machines Ltd., of London and Chicago and manufacturers of:

ELECTRIC WELDING MACHINES: Arc Welders, Autometic Flash Both Welders, Sport Welders, Parlable Sport Welders, Projection Welders, Seam Welders, Sport Welders, Special Welders, Special Welders, Special Welders, WELDING TIMERS, ELECTRONIC CONTROLS, OIL FILTER FRESSES, ELECTRO COMPARATOR GAUGES.

Local or Export Inquiries welcome. Technical service is freely available.

ASTON ELECTRICAL PRODUCTS PTY. LTD.

113 PALMER STREET, EAST SYDNEY

Telephones : FA 7057-8-9. Telegrams and Cables to : "ASTONWELD," Sydney.

AUTOMATIC FLASH BUTT WELDERS from .5 to 350 K.V.A.



ASTON 100 KVA AF/3. Automatic Flash Butt Welder for ALUMINIUM and STEEL Window Frames.

SPOT and PROJECTION WELDERS from 2 to 150 K.V.A.



ASTON 150 KVA Model SAC 150 Ignitron Central Spot Walder

ASTON

ARC WELDERS



ASTON Magnetic Shuntcontrolled Are Welder, oil-filled with infinitely variable amperage control, also with High Frequency

MAXIMUM EFFICIENCY with the 81/2-in, "NEW VISBY"

ALL-GEARED PRECISION LATHE-HEAVY DUTY MODEL



For TOOL ROOM USE or SPEEDY PRODUCTION

- Selective Speed Headstock
- Eight Spindle Speeds
- "Norton" Type Gearbox
- Automatic Apron Clutch
- Built to Schlesinger Limits
- Self-contained Motor Drive with Reverse
- Designed by Australians for Australians

AVAILABLE IMMEDIATE DELIVERY!

Write for Illustrated Brochure

243 CLEVELAND STREET, REDFERN, SYDNEY. Tel.: MX 2291. Telegrams: "DEMCO," Sydney.

> all or Large Stationary and Portable Equipments kept in stock for Immediate Delivery. OUR EXPERTS ARE AT YOUR

> If interested, write for particulars and prices. DEMONSTRATIONS

355 WILLIAM STREET, WEST MELBOURNE, VIC. Tel.: FJ 9288. Tolegrams: "DEFANCY," Melbourne.

DeVilbiss-Aerograph
Spray-Painting System

New DeVilbiss Type MBC Spray Gun

A Modern Spray Gun for the Application of Modern Finishing and Painting Materials

For thirty years, DeVilbles has held its position of acknowledged leadership in the manufacture of high quality Spray-Painting and Finishing Equipment.

Now, with this new Type M B C Spray Gun, DaVilbias takes another impressive step forward and makes the most up-to-the-minute contribution to spray-finishing progress. This new DeVilbies Spray Con has been designed especially for the application of the new synthetic materials. It sprays these new modern finishing materials with greater efficiency, producing higher quality finishes with less effort and at lower cost.

The type MBC is not only a new gun for use with new materials, but also is a better gun for the application of ordinary enamels, lacquers and paints.

Presenting many improvements in spray gun designs, this new gun retains and devalops to still higher efficiency the basic DeVilhias features which have been long tested and proved successful in many different industries and with many different painting and finishing materials. These patented and improved features include, of course, the removable spray head, ball and come nozale principle and graduated spray width adjustment.

The DeVilbias system of painting and finishing makes possible the application of varnishes, enamels. first centers, lacquers: in fact, practically any kind of liquid finishing materials on wood and nestal products by means of compressed air. It also has modernised the painting of buildings, ships and other large objects to a like extent, so that oil paints and enamels are now applied on them with air under pressure.

This system is the result of extensive painting, mechanical and manufacturing experience, and is practical and complete in every detail.

Sole Distributing Agents for Australia and New Zealand:

EXCELSIOR SUPPLY CO. PTY. LTD.

276 Post Office Place, MELBOURNE, VICTORIA.

160 BROADWAY, SYDNEY, N.S.W.

80 Victoria Street, WELLINGTON, N.Z.

(Continued from page 53.)

tensified by discussions regarding the hydrogen bomb. It is expected that the use of the hydrogen bomb —if it becomes an actuality — will be much worse in its affects han those of the uranium or plutonium hombs.

"In March last, the United States Secretary of State, Dean Acheson, made an important speech in San Francisco. He surveyed the international position. He said that a moral issue of the clearest kind separates Russia and the United States. The West was now, and would always be, at odds with a philosophy which claimed a monopoly of the knowledge of what was right and what was wrong for human beings—yet it does not follow from this that the two systems—theirs and ours—cannot exist concurrently.

exist concurrently.

"He then went on to lay down certain conditions. These dealt with the delayed treaties with Germany, Japan and Austria; the political freedom of the satellite States of Eastern Europe; the walk-out and boycott policy in the United Nations; the limitations of armaments—including atomic weapons; the calling-off of the activities of Communistic agents throughout the world; the proper treatment of communistic agents throughout the world; the proper treatment of accredited diplomate; and the ceasing of doping the Russian peoples with stories that Russia is surrounfed by packs of hungry Capitalistic wolves, and of the spreading through the world of morbid fancies such as that the United States is craftly and systematically plotting another world

"Almost simultaneously at the end of March last there was an important debate on Foreign Policy in the House of Commons. Mr. Winston Churchill made a magnificent speech, during which he said that fear must never be sailowed to cast out hope. Mr. Ernest Bevin, the British Foreign Minister, said that Western civilisation must be saved and concluded, T beg the House and the country not to despair because of present to the country of the cou

circumstances.'

We as students of world affairs and it is well to remember that all of us who are interested in the health, happiness and prosperity of those who follow us, should be students of world affairs—must realise that it is our duty and responsibility to do everything we can to help towards the solution of the present chaotic conditions which face us internationally. We must appreciate that such help will be seriously diminished, if within our own country there are serious disown country there are serious dis-putes and dissensions. Therefore, let us look for a few moments at the conditions of affairs within Australia. We certainly cannot be satisfied. We cannot avoid the Australia. We conclusion that the serious disputes which so frequently interfere Australia's productivity have a bad effect upon Australia's ability to help. We cannot but know that our ent abounding prosperity is due to the unexpectedly high prices which Australia is at present re-ceiving for its wool, wheat and

"We all know that if Australia were again faced with a situation similar to that in the early years of the last decade, we would increase rapidly the output of those vital raw materials, such as coal, steel, cement, bricks, tiles, timber and so forth in which we are to-day so seriously short. If it were not for the large Sterling credits which we have been able to build up, we would be unable to import coal, prefabricated houses and all the other various products which we ourselves should be producing.

"We are met to discuss for a week the relations between Management and Employees. We should realise that a house divided against theef cannot stand. Por Australia, the sands of time are running out and we cannot continue indefinitely to behave as if Australia were an island of security in a world of stress and turmoil.

"Do we realise that our figures of losses of production through industrial stoppages, measured by the number of working days lost, compare unfavourably with other democratic countries of the world? Do we realise that over the twenty years 1927-1949 Australia lost an average of 1,334 working days a year for every 1,000 people employed, whereas in Britain the records show only 292 days lost? Do we realise that whereas, over the last decade, we in Australia have expanded our total production by some 20%, Canada, whose conditions in some respects are not unlike our own, has expanded production by over 60%? And, realising these things, can we feel actioned and content with our record!

"The art and science of medicine and surgery teach us that surface application of salves and ointments is useless for the cure of internal cancerous growths. We know that only by long and serious study and research into basic causes can we hope to introduce and apply methods of certain cure. What applies to medicine and surgery also applies, without change, to the everpresent problem of the social and industrial troubles which afflict our

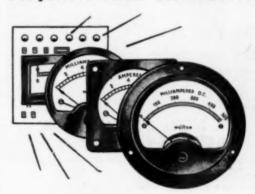
democracy so grievously.

"Therefore, let us, during this coming week, and continuously thereafter, try to know more about the basic causes of our industrial malaise. We must ask ourselves and others whether these too frequent interruptions to production are due to diseastisfaction with existing conditions which is soundly based, or to other causes in part or in whole, which arise from activities of groups whose main object is to make our present social system unworkable—thereby creating chaos—out of which chaos they hope for a new social system. For some system we must have.

"The first step in such a study will be to determine the facts—

"The first step in such a study will be to determine the facts—particularly as to whether our social ills arise mainly from disputes in a comparatively small number of key industries. I have never looked, personally, for slavish contentment, but I have always hoped and prayed for an understanding agreement between the essential sections of our

for an understanding agreement between the essential sections of our social and industrial structure.
"In this brief survey of our problem I do not attempt to point the finger of blame at one or other of the sections of the community. I am trying, as part of my small Sangamo-Weston Instruments



Accurate, Reliable, Sturdy

Weston Electrical Measuring Instruments, justly famous for 60 years, now manufactured by Sangamo-Weston of England, are available to you at Warburton Franki Ltd.

These high-quality instruments have sprung jewels for robustness, renowned controlleddamping system, and many other features.

Whatever your instrument needs, whether Panel, Switchboard, Portable, Laboratory Standards, Galvanometers or Multi-Range, you can be sure of satisfaction at Warburton Franki.

Their Technical Department is available to you, to advise on the particular model to suit your requirements.

Distributors

MARBURTON RANKI LTD.

307-18 Kent St., SYDNEY — 8X 2351 380 Bourte St., MELBOURNE—MU 6355 233 Elizabeth St., BRISBANE — 8131 103 Seett St., NEWCASTLE — 8 3741 80 Keira St., WOLLONGONG—Wol. 888

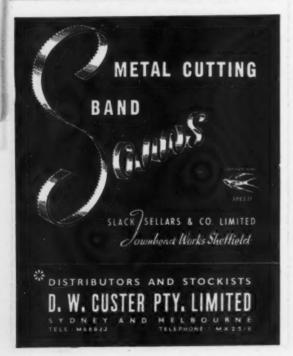


10 PEOPLE CAN WASH AT ONE BRADLEY WASHFOUNTAIN

- The Bradley Washfountain cuts costs in valves, makes your amenities
- · Bradley is new, durable and easily cleaned.
- Bradley supplies maximum sanitation.

BRADLEY

WASHFOUNTAINS OF AUSTRALIA, BALMAIN, N.S.W.



EAGLE & GLOBE SERVICE

From large stocks hold in all Australian capital cities From large stocks hold in all Australian capital critics we give you immediate delivery of our HIGH GRADE Carbon and Alloy Tool, and Die Steels. Twist Drills, Milling Cutters, Reamers, Hacksaw Blades, Files — Circular Saws, Machine Knives, Silver Steel. Tool Bits.



THE EAGLE & GLOBE STEEL CO.

23-37 BUCKLAND STREET, BROADWAY, N.S.W. Postal Address: Box 34, P.O., Broadway, and 'Phone MA 6421.
Telegrams: "YARTIS"

Cnr. Sturt and Grant Sts., SOUTH MELBOURNE, MX 5771. Telegraph: "CAPITAL"

BRISBANE, ADELAIDE, PERTH, AND AT SO AT

contribution, to clear our minds, so

that we can define—to some extent at least—the limits of our studies. "We must try to determine the extent to which our troubles in Australia to-day are due to disturb-ances endemic in a few industries. must remember that these troubles reduce seriously our ability to create a nation which has both internal and external strength. are short of coal, therefore we are short of steel, bricks, tiles, cement, power and many other products produced by the use of coal. The turn round of the ships, both coastwise and overseas, is frighteningly We have far too many interferences in the essential services of transport. You can add to this brief review from your own know-

"How are we going to create that true, confident, trusting partnership of mind and effort which will alone enable us to do better? How are we to go about building that sense mon purpose without which our Democracy must stumble and falter, and our productive efforts be little more than 50% of what it could be? These are questions, the answers to which this Conference must seek to give a guide. There are, I suggest, two broad paths upon which solutions must be sought. The first is at the national level.

"There are economic industrial and social forces, national in extent, decide the atmosphere climate, within which separate in-dustries or plants must seek their own solution for building confidence and comradeship between management and employees. Good rela-tions at the plant level can prob-ably not be fully obtained unless the national climate is clean and invigorating. However, national policy and national machinery by themselves would not suffice. industry, each business, must strive within its own ambit to build a contented team.

"It seems that the problem must be approached from both ends. Having this in view, can we not seek a new basis of mutual health and understanding between the great national unions of labour, on the one hand, and those organisations representing thousands of member employers on the other?

"What steps can be taken to achieve this? Have we not a guide from Great Britain and also from what has recently occurred in New In Britain there is a

National Joint Advisory Council consisting of representatives of the unions and of the Federation of British Industry. This is a permanent body meeting and consulting regularly and advising the Government on matters of common concern, on economic policy which impinges on the interests of employers and employees and 00 measures designed to improve industrial relations and productive efficiency. On various occasions, efficiency. On various occasions, this body has issued reports to the Government. Its activities are reinforced by a wide framework of inforced by a wild realized by a bodies of similar type at industry and local levels. All matters of common concern are discussed not merely those which are the subject of possible dispute.

"It is interesting to note that to-wards the end of 1949 the New Zealand Parliament passed laws to pro-vide for a National Industrial Advisory Council of a similar type to that obtaining in Great Britain. Is it not possible to do something similar in Australia? At the start it would be a miracle if such a scheme worked anything else than most imperfectly. But in time and with perseverance I am sure that it would begin to function so as to bring benefits to the nation and would help towards that stability which is at present so desperately needed. For such a scheme to work at all there would need to be properly constituted bodies, Federal and State, with provision for regular meetings—at least every six months. It should also provide for a small executive section to meet more frequently. The Council could be created by Parliament with the agreement of all concerned. If this is impossible under the Constitution. then it could be achieved by voluntary agreement. The arguments based upon the present unsatisfactory position are so clear that they need not be stated here.

"It has been truly said that too many of our unions and too many of our employers are bringing a nineteenth century philosophy and policy to deal with twentieth cenponcy to deal with twentieth cen-tury problems and conditions and that a sweeping re-alignment of attitude is essential. Can we not shift the emphasis from diver-gence of interests to the all-important and basic identity of interests?

"We know only too well that there are not enough people at present, (Turn to page 58.)

G. & H. WORM GEAR SPEED REDUCERS

W.R.U.

Gregory & Hickey Pty. Ltd. have developed the W.R.U. fan-cooled splash lubricated worm-gear Reduction Unit for economical and efficient transmission needs of every industry. Speed reductions approximately 5 to 1 up to 60 to 1 are obtainable.

The Worm and Wheel are housed in a strong cast-iron casing of neat design, which affords rigid support to the goars and bearings, and also forms an oil bath giving adequate lubrication. The unit is constructed to withstand the usual overloads, and the shafts and bearings are designed for overhanging loads. The bearings can be interchanged to give any desired arrangement of output shaft. The system of ribbing adopted on the casing ensures rigidity, as well as providing for dissipation of heat. The joints are oil tight and the various holes are bored and drilled in Jigs, ensuring accuracy and interchangeability.

FEATURES:

- 1. Is compact and requires very little floor space.
 2. Requires no attention other than occasional checking of the oil level.
- 8. Runs with the highest efficiency and ensures a positive
- 4. Silent and clean in operation.
 5. Not affected by dirt or dust externally.

GREGORY & HICKEY PTY. LTD.

49 GREEK STREET, GLEBE, N.S.W.

'Phone: MW 2128



Gear Specialists with racilities for handling any year reducer problem, a Single Helical and Straight Tooth Spure, Worm Gears, Secol Gears, etc.

The MODEL CASH Compressed Air Unit

"CASH" COMPRESSED AIR UNIT.

SPECIFICATIONS: Displacement: 10 cub. ft. per minute (free air). Maximum Pressure: 130 lbs. per sq. in. Tank Capacity: 7 cub. feet. Motor: 2 h.p., 1,400 r.p.m. Overall Dimensions: Length 8ft, width 2ft. Jin., beight 3ft. 9in.



Also Manufacturers of -

MODEL "K" COMPRESSED AIR UNITS

Displacement 23 cub. ft. per minute

"CASH" DOMESTIC REFRIGERATORS

"CASH" PLAIN HORIZONTAL MILLING MACHINES

NOTE NEW ADDRESS:

CASH ENGINEERING CO.

249 Bridge Road, Richmond, Melbourne

Phones: JA 5644 - 5645

COATED ABRASIVES OAKEY

EMERY . WELLINGTONITE

CARBORUNDUM CLOTH

METAL & ENGINEERING
TRADES



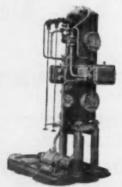
Representatives :

H. S. INGAMELLS & CO. 408-410 Collins Street

MELBOURNE

25 Clarence Street SYDNEY

DEAERATION



Deaerator for 50,000 lb. of feed water per hour.

HAS BECOME A NECESSITY WITH BOILERS AND ECONOMISERS OPERATING AT HIGH PRESSURES AND RATINGS.

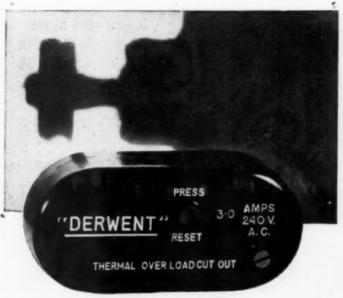
The Thompson two stage flash type Deaerator provides descrated feed-water and so insures boilers, economisers and feed mains against oxygen corrosion. The whole of the heat in the low pressure steam used in the Deaerator is returned to the Boiler in the feed water.

Built to standard sizes for capacities of 15,000 to 400,000 lb. of feed per hour.

Special designs for larger capacities.

We shall be pleased to submit proposals and estimates.





PRICE: 21/-, plus Sales Tax. All States.

PROTECT YOUR ELECTRIC MOTOR WITH THE EASY TO CONNECT

DERWENT

THERMAL OVERLOAD CUT-OUT

The Derwent Thermal Overload Cut-out is a heat protection device designed to protect A.C. Single Phase motors against overload burn-outs.

Immediately the load exceeds the safe limit, the "Derwent" cut-out automatically operates, cutting out the motor and saving it from damage. The cut-out is manually reset by simply pressing the "reset button." Maximum temperature attained by switch at 600% overload, is approximately equal to a locked rotor current of 900 deg. C.

Available from all electrical wholesalers in various sizes up to 5.1 amp. switch rating.

Australian and N.S.W. Factory Representatives :

DOMINION FACTORS PTY, LTD.

128 CASTLEREAGH STREET, SYDNEY. 'Phone: M 4507. And at 218 MAITLAND ROAD, NEWCASTLE

Old. Rep.: T. H. Martin & Co., Wilson House, 35 Charlotte St., Bris. Victorian Rep.: A. E. Ackland Pty, Ltd., 406-414 P.O. Pl., Melb

(Continued from page 56.)

and under present conditions in Australia, to meet all the demands of all types of industry. We can, however, appreciate that with the available people in Australia to-day much more could be done, and much more could be done, and much greater production could be assured, if only we could get an understanding and if only the brakes on industry, which are dis-sipating energy in friction could be released.

With the increase in the rapidity transport, with the promising and frightening developments of science, Australia and New Zealand two lonely outposts—have been drawn into world affairs so rapidly that this crucial fact has, I fear, yet impressed itself upon the minds of many Australian men and women. We must not forget the fate that has fallen upon a number of countries—Latvia, Lithuania, Estonia, Rumania, Bulgaria, Czecho-slovakia, and so forth. We must not forget that, if we believe in the democratic way of life, we must get together, we must understand one another better; we must be more efficient and more productive.

"Since 1945, world events, warnings on every hand, bring us face to face with menacing threats. Surely it is a duty that a group of some 130 Executives, representative of Employers and Employees should, during this week of con-Employees. structive thinking use every available means to build a mutual understanding. Through sound planning, we must strive to foreplanning, we must strive to love-stall opposition before it hinders that which we all wish to achieve. The way of life of each of us, the depth and breadth of our thinking

of such planning.
"One final thought—or, rather, question—to what extent are our present troubles due to our loss of a religious basis of our methods of living? Recently, the Executive Committee of the Federal Council of Churches in the United States issued a considered statement which I quote in part: "The main hope of peace in this period lies in mustering the spiritual, moral and material resources latent in our world and directing them towards the positive goals of human welfare, thereby helping to build bridges of understanding and fellowship among the peoples, and serving to isolate the forces of tyranny and

"I repeat my appeal to you to direct your thoughts towards defin-

in relation to personal and national ing the basic causes of our indus-problems, are the vital beginnings of such planning. and methods whereby improvements

can be obtained.
"Leadership in all sections of industry is essential. We must study with open minds the directions in which improvements in management can assist. We must study all means and methods for the pro-motion of understanding whereby a happier state of affairs can be achieved, whereby better discipline on the best basis can be obtained and maintained; whereby all other things that matter, such as reduction of absenteeism and turnover of staff and employees, can be

or start and employees, can be brought about.
"The problem is complex and many-sided. It will be only by persistent study, thought and good-will that real results will be obtained."

PRECISION

APAX

- WASHERS
- PACKINGS
- SEALS

APAX GASKETS

GASKETS

329 BELL STREET, PRESTON, VIC.

'PHONE: JU 3773

"A" GRADE PACKINGS PROMPT DELIVERIES



The Aerofin Coil, which is exclusive to Carrier, was designed by their engineers to meet every requirement of modern advanced fan systems of unit heating. The Carrier Unit Heater is efficient, adaptable and—

Engineered as a Complete Unit for Greatest Economy

Right now is the time to get in touch with Carrier engineers about your prospective heating requirements. Practical suggestions from Carrier's experienced and trained technical staff can mean important savings for you. Types for practically every requirement are available, for high and low pressure steam, hot water or electrical elements.

Write or phone to-day for complete information.



CARRIER AIR CONDITIONING LIMITED

68-46 Bourke Street, East Sydney, H.S.W.

18-17 Lincoln Square, South Cariton, H.3.

Light Metal Stampings



Quality and Durability that went into the aircraft parts during the war are now r unlimited variety of peace-time products a or letter will receive prompt attention.

9 Therry Street, MELBOURNE.

'Phone: F 3629 (2 lines).



A NEW TIME SAVER! The "Ato-mix" BLENDER and DISINTEGRATOR

THE MSE ATO-MIX . . . MIXES - DISINTEGRATES PULPS - EMULSIFIES TRITURATES, Etc.

The high-speed stainless steel blades will quickly bland liquids and also car and pulverise a wide variety of solid and semi-solid substances into time suspensions and solutions; thus facilitating many clinical and solutions; thus facility laboratory processes.

Full particulars from Sole Australian Agents:

OPTICAL & SCIENTIFIC CO. THOMAS PTY, LTD.

Head Office: 354 Lonsdale Street, Melbourne. MU 6991. Also at 34 Clarence Street, Sydney. BX 4726.

GENERATING MOBILE SETS.

THEIR USE IN THE FILM INDUSTRY.

For many years now, many carnival and sideshow proprietors have transported their cwn power in the form of the petrol or diesel driven generating set mounted on the back of a lorry specially adapted for the purpose. In most cases, both lorry and set are of a fairly ripe antiquity, but the traditional bright lights and blaring music of the fairground bear ample witness to their efficacy. For many years carnival and sidesi

their efficacy.
Recently, this type of plant has been modernised in the cause of another type of entertainment. Film companies have discovered that the mobile generating set can be used to great advantage can be used to great avantage in cases where filming is in operation outside or, technically, "on location" where it is impossible to use the photographic lighting available at the studios. When required for this work,

When required for this work, the set, mounted either on a lorry or on a separate trailer, is taken out on location, parked some little distance from the "set" or filming area and connected up to the various photographic equipment. Work can then be carried on quite normally by day or by night.

A British firm has equipped a number of such sets for the film industry.

film industry.

Perhaps the most interesting units technically are those of the type supplied to Denham & Pinewood Studios L&d., and to the Associated British Picture Corporation.

These units, mounted integrally with the chassis of a Foden vehicle, incororate the Paxman-Ricardo 12 RPH V-Type 12 Cylinder 350 b.b.p. diesel engine. Direct coupled to the prime mover through a flexible coupling is a Lancashire Dynamo & Crypto compound-wound open type, two bearing D.C. generator with an output of 200 KW. This generator has been specially designed to give a ripple free current, thus ensuring that the lighting given is completely steady.

Equipped with electric starting, the whole of the equipment is mounted on a fabricated starting.

mounted on a fabricated steel underbase, the base being supported at ten points by flexible rubber mountings which prevent any noise transmission to chassis of the lorry.

A special feature of this type of unit is the extensive soundproofing. Previously the normal running noise of the sets had not allowed of direct dialogue recording and "dubwas found necessary. bing" means that, on location, only the action is photographed, the sound track being added later in the recording theatre. This was naturally a costly business as it en-tailed employing the artists twice, once for the action and once for the sound. With the soundproofing fitter, however, nor-mal dialogue can be obtained as near as one hundred yards, the exhaust being inaudible at this

The complete unit is very taste-ully styled and finished, the (Turn to page 62.)

> IMPORTERS OF ANILINE DYES DRY COLOURS, OXIDES CEMENT COLOURS WHITING, ALUMINIUM AND BRONZE POWDERS

HODGSONS DYE

AGENCIES PTY. LIMITED 268 Sussex St., Sydney, M.S.W. Soakist House, Downlo St., off 534 Flinders St., Melibourse, Meritima Bidg., Brisbene, Old. Wellington, M.Z.



FINE accuracy is built into means the best.

every Shardlow micrometer ... the kind of accuracy that remains unimpaired by years of constant service. In micrometers Shardlow

AMBROSE SHARDLOW & CO. LTD., SHEFFIELD.

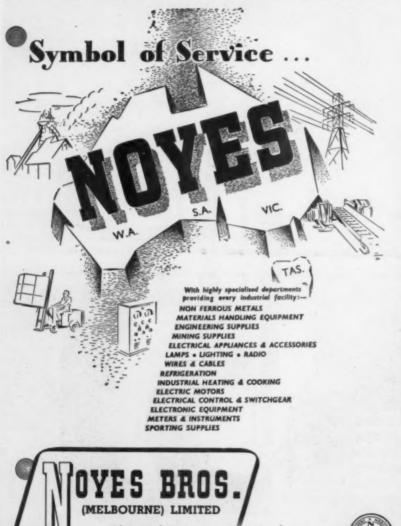
LEADING ENGINEERING SUPPLY HOUSES THROUGHOUT AUSTRALIA

RAW MATERIALS H. J. LANGDON & CO. PTY. LIMITED

CHEMICALS, CRUDE DRUGS, DRY COLOURS, WAXES. ESSENTIAL OILS, GUMS, HERBS, METAL FOILS

Distributors for CELLULOSE "Cellophane" FILM Registered Trade Mark of BRITISH CELLOPHANE LIMITED Telegrams: "LANGDON," Melbeurne. Sydney Office: 8 Bathuret Street

500 COLLINS ST., MELBOURNE, VIC. Tels.: MB 2511-5.







MELBOURNE

BROKEN HILL

HOBART

DEVONPORT

KALGOORLIE

(Continued from page 60.)

body of the lorry being fitted with a roller shutter at the rear so that when travelling or not in use, the set is totally enclosed.

Another unit recently equipped for the film industry was built for Ealing Studios Ltd. This set also employs a 12-RPH engine; it differs from the others, however, in that a lorry is the transporting agent and that the generating unit is not mounted integrally with the mounted integrally with the chassis but is bolted down on to the existing body. Sound-proofing has not been carried out on this set and a different system of shuttering is employed. The whole unit presents a most workmanlike and efficient ap-pearance and has been used both for supplementing existing studio power and for supplying lighting for night exteriors or outside scenes on location. It has been scenes on location. It has been used in the production of many British films, including "Passport to Pimilco", "Saraband for Dead Lovers", "Scott of the Antarctic", "Bonny Prince Charlie", "A Run for Your Money", "The Fallen Idol", and "Seven Days to the Moon."

Moon.

Television is another sphere in which this set has been employed.

On two occasions it has been which this set has been employed.
On two occasions it has been loaned to provide lighting for a broadcast, once for televising a circus and once for the National Savings Rally at Earl's Court. London.

Extreme manoeuvrability, compactness and relatively light weight have combined to make the mobile power unit deservedly popular.

This equipment reached a standard of efficiency greatly in advance of its fair-ground ancestor and it is certain that it contains potentialities which have as yet remained unexplored.

OUTPUT OF VITAL MATERIALS.

In a bulletin issued last week by the Commonwealth Statistician at Canberra, it is shown that the production of a lot of vital Australian materials—especially coal—is in-creasing. Here are the facts, given in the bulletin:-

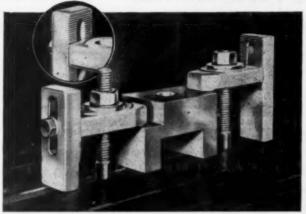
Black Coal produced in March amounted to 1,441,000 tons, com-pared with 1,284,000 tons in Febary and 1,013,000 tons in January.

Brown Coal production increased from 586,000 tons in February to 662,000 tons in March.

Cement Sheets for building pro-duced in February amounted to 1,830,000 square yards, compared with 1,320,000 square yards in Jan-

Portland Cement produced increased from 84,200 tons in January to 103,600 tons in February.

USE "HAMBER" CLAMPS



on all your MILLING MACHINES, DRILLING MACHINES, LATHES, BORING MACHINES, ETC.

- CLAMP THE "HAMBER" WAY—WITHOUT MAKE-SHIFT PACKING PIECES
- . SERRATED SUPPORTS GIVE A VICE-TIGHT GRIP
- * INSTANT AND EASY ADJUSTMENT FOR ALL HEIGHTS UP TO 6 INCHES
- + SIMPLE STRONG EFFICIENT

MADE IN ENGLAND

Sole Selling Agents for Australasia:

ALFRED HERBERT (A'ASIA) PTY. LTD.

101 PYRMONT BRIDGE ROAD, PYRMONT, SYDNEY - Telephones: MW 2734 (3 lines), MW 1355
144 KING STREET, MELBOURNE - - Telephones: MU 4821, MU 2751
South Australian Representatives - - FRANK DE ROSE & CO., 78 Waymouth Street, ADELAIDE



COMPLETE EXPORT-IMPORT SERVICE

You can investigate the prospects of your products for EXPORT through ONE organisation catering for all markets. At the same time this organisation can offer you the requirements you need in your production from outside Australia. This company covers the main commercial centres of the world through its own offices, with sub-agencies throughout their respective territories:

THE EAST ASIATIC COMPANY AUSTRALIA PTY, LTD.

(Incorporated in N.S.W.)

Endeavour House, 48 PITT ST., SYDNEY, N.S.W.
Telephones: BW 2036, 2037 and BU 3591. Telegrams: "Eastaile."

Western House, 83-80 WILLIAM ST., MELBOURNE, C.1, VIC.
Telephone Nos.: MB 1255 and MB 2213

Completely equipped offices in Bangkok, Bombay, Buenos Aires, Calcutta, Capetown, Daires, Durban, Guatamala, Hankow, Harbin, Hawana, Hong, Kong, Johannesburg, Karachi, Kuala Lumpur, London, Madras, Mania, Mexico City, Montreal, New Orleans, New York, Penang, Port Elizabeth, Rangoon, Saigen, San Francisco, San Salvaders, Sao Paule, Shanghai, Singapore, Teingtao, Vancouver B.C., Waihaiwei.

Used by some of the most modern and largest foundries in Australia, as well as hundreds of other concerns.

"JAMEC"

PNEUMATIC HAMMERS
AND VIBRATORS

are doing a grand job

Stockists in all States

Ask for full particulars of the JAMEC range of tools



JAMEC

Made and Guaranteed by

J. MORRIS ENGINEERING CO.

603 ELIZABETH STREET, MELBOURNE, AUSTRALIA

"WURKREST" FACTORY EQUIPMENT

CHAIRS, STOOLS, STEEL TABLES

For CUTTING, PACKING, FOOD PROCESSING.

CANTEENS, etc. Steel, Wood or Mesonite Tops.

PALLETS. TRUCKS.

Sewing Machine Motorised Unit Stands



FACTORY EQUIPMENT & ENGINEERING PTY, LTD.

Fabricating and General Engineers

20A CITY RD., SYDNEY, N.S.W. Tel.: MA 3980

Use Our Service for

DYNAMIC BALANCING of

MACHINE ROTATING PARTS — SAVE RUNNING COSTS

Vibration due to out-of-balance rotating parts not only causes excessive wear on bearings, but is often respons-ible for damage to frames and other parts of the machine

To-day, Dynamic Belancing provides the only method of correcting unbalance in rotating parts—ensures smooth, silent operation by eliminating damaging vibration, lessening the risk of damage to expensive equipment and possible injury to personnel.

Look your plant over—where machines are noisy, running hot, causing needless stoppages in production, call us for specialised experience in repair and maintenance, and, where necessary, Dynamic Balancing of defective equipment.

• We do not manufacture Balancing machines for sale. Our business is to utilize our patent rights to perform this Balancing inervice for our clients.

JONES & RICKARD PTY. LTD.

MANUFACTURERS OF SPECIALISED ELECTRICAL EQUIPMENT 828 ELIZABETH STREET, SYDNEY. MX2097



Complete specifications lodged with the Patents Office are open to public inspection almost immediately after their iodgment. Interested persons are now able to obtain the details of an invention for which protection is being sought.

Frovision is also made (Patents Act, 1946) for an applicant to obtain damages, if infringement occurs, from the date of publication of the application. A rule of practice has been established whereby an application will be examined more speedily when a prima facte case of alleged infringement is proved.

Particulars of the necessary procedure will be supplied by any Patent Attorney practising in the Commonwealth.

PATENT SPECIFICATIONS **ACCEPTED**

SELECTOR BANK FOR AUTO-MATIC TELEPHONE SYSTEMS. 137,913.—Telephone & Electrical Industries Pty. Ltd., N.S.W.

To facilitate assembly and to simplify construction without materially departing from stipu-lated dimensions, a selector bank is provided wherein each "level"

ARTHUR S. CAVE PATENT AND TRADE MARK

Successor to

FRED WALSH

(Incented 1862) 16 BARRACK ST., SYDNEY, N.S.W. 'Phone: BX 4120

PATENTS, TRADE MARKS, DESIGNS AND COPYRIGHTS AUSTRALIA AND OVERSEAS GRIFFITH, HASSEL & GRIFFITH PATENT ATTORNEYS - EST. 1895. Asheston House, 67 York St., Telephone SYDNEY, M.S.W. BX 2040

is comprised of a pair of opposed plastic separators with accurately formed grooves having inlaid con-tacts which are flush with re-spect to the separators, and an insulating separator between the opposed plastic separators.

AIB-LINE CONNECTOR FOR BICYCLE AND LIKE TYRE VALVES.

137,015,-H. T. Tatton, Qid. To enable the action of applying the device to a tyre valve to operate an air valve, a connector includes an inlet chamber for attachment to a compressed supply, an air tube guide aper-ture leading from the chamber, which houses a valve which is normally closed by the comnormally closed by the com-pressed air in the said chamber, and an air tube longitudinally slidable in the said aperture and having an outer end engagable under pressure with a tyre valve, which pressure slides the air seat the valve from off its seat to allow compressed air to flow.

FLOAT VALVE FOR CISTERNS 137,014.—Knight Valve Co. Ltd., NZ.

A valve for cisterns and the like for use in high or low pressure water systems, comprises an inlet portion separate from the iniet portion separate from the valve body into which it projects a valve seat, the iniet bore, through such valve seat, being suited for low pressure water supply is screwed to receive a supply in screwed to receive a reduction nipple for use on high pressure supply systems.

TRADE MARK **APPLICATIONS**

Football 94,314. "National." tube inwardly to engage and un- covers, basketball covers, soccer ball covers and cricket balls,-John Hope Hague, 8 Talbot Street, Erindale, South Australia.

94,706. "Sindanyo." Materials in the form of boards, sheets, panels and machined pieces composed principally of asbestos for use in electrical insulation and for electrical arc and heat resisting purposes.-Turners Asbestos Cement Company Limited, Spot-land, Rochdale, Lancaster, Eng-

Patents, Designs, Trade Marks and Copyrights of all Countries

FREDERICK B. RICE Ing. Dipl. - Fellow, Inst. Pat. Att.'s Aust.

Club Chambers, 96 Phillip Street, Sydney, N.S.W. Tel.: BW 4678.

Osborn F. Cartwright PATENT AND TRADE MARK

ATTORNEY

350 George Street, SYDNEY Telephone: BL 1894

Pollow Institute Patent Attorneys of

PHILLIPS, ORMONDE, Le PLASTRIER & KELSON

ESTABLISHED A.D. 1888 CECIL L. PLASTRIER. GEOFFREY SLY. BERTRAM C. FITZPATRICK. TRADE MARK AGENTS ---- PATENT ATTORNEYS PROVIDENT LIFE BLDG., 37-41 QUEEN ST., MELBOURNE Telephone: MB 2594 (2 lines)

SAND and GRIT WON'T HURT IT!

MARINO FLEXIVANE PUMP

(Dowling Patent No. 18857/48)

This salf-priming pump is unbeatable for engine cooling and bilge pumping and all small water pumping job Capacity is 300 gala, per hour at 1,000 r.p.m. and labrication is necessary. Write for details.

Factory Representatives :

Parbury, Henty & Co. Ltd., Sydney, Parbury, Henty & Co. Ltd., Melbourne.
Parbury, Henty & Co. Ltd., Adelaide. Sandovers Ltd., Perth.
Max Germaine, 36 Collins Street, Hobert. Manufactured by

MARINO PRODUCTS PTY.

BARRY PARADE, BRISBANE, QUEENSLAND

95,545. "Radelec." Moulded cabinets. — Amalgamated Wireless (A'asia.) Limited, 47 York Street, Sydney, N.S.W.

95.582. "Shur-Tac." Cement for sticking rubber or leather Shirley Finishes Pty. Limited, leather.-Chippendale, Shepherd Street,

94,123. "Ellicem." Calcareous cement.—John Ellis & Sons Limited, 21 New Walk, Leicester, England.

TENDERS FOR PATENTS

"PACKING TRAY."

The proprietors of Commonwealth Patent No. 124,061, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the and vend the invention within the Commonwealth of Australia. Particulars obtainable from GRIFFITH, Patent Attorneys, of 67 York Street, Attorneys, of 67 Sydney, N.S.W.

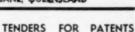
Manufacturing Engineers

Automatic and Capstan Turning, Milling, Drilling, Cutter Grinding

GENERAL MACHINING AND ASSEMBLY

W. B. STEEN PTY. LTD.

129 Palmer St., Richmond, Vic. Private 'Phone: XY 1603 For Precision and Service



EXPANDED RUBBER COM-PANY LIMITED, the proprietor of Australian Patent No. 112,455, for "Improvements in the Pro-duction of Gas-expanded Rubber Material or Rubber-like Material," invites enquiries from persons interested in operating or using the patented invention in Aus-tralia under licence or other

tralia under accence
arrangement.
Address enquiries to
A. WALLACE SMITH, Patent
Attorney, 358 Collins Street, Mel-

"IMPROVEMENTS IN OR RE-LATING TO SHOCK
ABSORBERS."
The proprietors of Commonwealth
Patent No. 116,733, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make use
and vend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of 67 York Street,
Sydney, N.S.W.

"PRINTING INK."
The proprietors of Commonwealth
Patent No. 115,149, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and vend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of 67 York Street,
Sydney. N.S.W. "PRINTING INK."

"IMPROVED MOUNTING FOR SPINDLES AND OTHER ROTATABLE MEMBERS, FOR INSTANCE, IN GYROSCOPIC INSTRUMENTS."

INSTRUMENTS."
The proprietors of Commonwealth
Patent No. 118,865, are prepared to
negotiate for the sale of their
rights in the above, ar for the
granting of a licence to make, use
and vend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of GY York Street,
Sydney. N.S.W. Attorneys, of 67 Sydney, N.S.W.

FOR IMMEDIATE DELIVERY



CENTRALISED CONTROLS for ease of operation

Centrelised control is one of the important features of the improved INVICTA" high - speed shaping machines The clutch lever is arranged to operate a mechanical brake, and with the speed change levers, is grouped within easy reach of the operator. Ease of operation, together with smooth, continuous heavy-duty, makes these machines outstanding in performance. Models available: IM-10" stroke, 2M-14" stroke, 4M-18" stroke, 6M-24" stroke.

OUTSTANDING

FEATURES : Taylor multiple disc clutch.

- 2. All shafts on ball bearings. Gears and bearings tetally enclosed in oil bath.
- à speed totally enclosed gearbox - gears made of man-ganese chrome molybelenum
- 4. Self-contained motor drive.
- 5. Variable feed per stroke of

New South Wales:

CLEVELAND MACHINERY CO. PTY. LTD.,

193-195 Cleveland Street, Redfern,

South Australia:

LAPTHORNES LTD.

232 Victoria Square, Adelaide.

Victoria:

FRANK VIAL & SONS PTY. LTD.

369-371 Queen Street, Melbourne.

NOW AVAILABLE!

Henderson's ASSORTED

SPRING WASHER KI

Assorted SPRING WASHERS

PHENDERS

SPRING WAS

A handy "tool" for every Tradesman, Engineer, Mechanic Farmer, Handy man to have on

efian yes're get an ee Handerson's high-grade washers in your workshop in a strongly-built "bn metal cabinet with conven lid, and with each of the eight of

ALL WHOLESALERS, HARDWARE STOR ED GARAGES M50-12

FEDERAL SPRING WORKS LIMITED

IMPROVE YOUR PLANT EFFICIENCY WE HAVE HAD A LONG EXPERIENCE IN THE DESIGN

SPECIAL INDUSTRIAL EQUIPMENT

Let us study your plant and make suggestions for increased production at Lower Cost.

Write for illustrated leaffets on standard BISHOP Machines and Systems

BISHOP'S IMPLEMENTS PTY. LTD. SUNSHINE RD., WEST FOOTSCRAY, MELBOURNE. "Phone: MW 2801.

BRADSHAW AUTOMATICS PTY. LTD.

Manufacturers of

"SILVER SPEAR" SAFETY PINS, TOQUE PINS, AND STITCH HOLDERS.
"SILVER SLIDE" PAPER CLIPS.
"GOLDSPEAR" HAT PINS, COLLAR PINS.
"KRACK.«BACK" MOUSE AND RAT TRAPS.

147 CHAPEL STREET, ST. KILDA, S.2, VICTORIA

Phones: LA 3226, LA 4657 (After Hours, U 9892) Telegraphic Address: "BRADPINS"

TENDERS FOR PATENTS

IMPROVEMENTS IN OR RE-

"IMPROVEMENTS IN OR RE-LATING TO OPTICAL DE-VICES, LIGHT-TRANSMITTING ARTICLES AND THE LIKE" The proprietors of Commonwealth Patent No. 119,327, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia. Parti-culars obtainable from GRIFFITI. obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"APPARATUS FOR DRYING GRAINS, GRASSES, VEGE-TABLES, ROOTS AND THE LIKE" LIKE

The proprietors of Commonwealth Patent No. 123,127, are prepared to negotiate for the anie of their rights in the above, or for the granting of a licence to make, use and vend the invention within the commonwealth of Australia. Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"IMPROVEMENTS IN ELEC-TRIC IGNITION DEVICE FOR FUEL BURNERS."

FUEL BURNERS."
The proprietors of Commonwealth
Patent No. 123,558, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and wend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH.
HASSEL & GRIFFITH Patent
HASSEL & GRIFFITH Patent HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"IMPROVEMENTS IN A MAN-DREL FOR TUBULAR MA-TERIAL, PARTICULARLY FOR USE IN BIAS CUTTING MACHINES."

The proprietors of Commonwealth Patent No. 109,037, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia. Particoulars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"IMPROVEMENTS IN OR RE-LATING TO GYROSCOPIC INSTRUMENTS."

The proprietors of Commonwealth Patent No. 103,588, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia. Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"SAND MULLING APPARATUS." "SAND MULLING APPARATUS."
The proprietors of Commonwealth
Patent No. 124,529, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and wend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of 67 York Street,
Sydney, N.S.W.



281 Latroba St., Malbaurna, MU 2821.

- Engineers' Machine Tools
- Woodworking Machines A Portable Electric Tools
- O Circular and Band Saws

ALL TYPES SAW REPAIRS

"WENDEL" **PORCELAIN FIELD RHEOSTATS**



3/2 in. diameter — dissipates up to 80 watts. Made to order for lighting plant switchboards, etc.

Factory Price: £1'9'8 each net Enquiries invited by

R. B. CHURCHLEY PTY. LTD. Factory representatives for all States 175 WILLIAM ST., MELBOURNE Tels.: MU 1517, MU 4577.

Industrial Diamonds GUTWIRTH & SONS

368 Collins Street, Melbourne P.O. Box 980, G.P.O. Tel.: MU 5116

MACHINING CAPACITY

Engine lathe work from 7in. to 11in. centres, Milling, Slotting and Drilling. Also some capacity for both Chucking and Bar Turret work (Ward No. 7 Comb Turret).

COX & BATES

116 Little Lonsdale Street Melbourne

Newman

TOTALLY ENCLOSED INDUSTRIAL MOTORS

British-made for Australian Industry -- the pioneers in the universal application of Totally Enclosed Motors now make available to Australian Industry motors of the highest standard, ranging from 1/6 to 25 horsepower.

The construction of Newman Motors ensures complete protection to all internal parts. They are precision-built to the highest specifications, fan-cooled, smooth and simple.

We are manufacturers of: Leather Belting. Rawhide Bolting, Pump Leathers, Harness Leathers, Industrial Gloves, Cut Soles, etc.



THE MODERN MOTOR FOR MODERN INDUSTRY

N.S.W. Distributors:

Mangrovite Belting Ltd.

YORK STREET

SYDNEY. Telephone: BX 1641

Telegrams: "Mangrovite," Sydney

Brenco introduces





MILLING CUTTERS "NURAKE"

The "PROLITE-NURAKE" Specification incorporates a locking device which is standard on the complete range of Face Milling Cutters.

This locking device, which enables the blades to be easily adjusted or replaced, consists of a wedge which is held in position with two "Unbrako" cap head screws and a central release screw which lifts the wedge after slackening the cap screws. The blades, which are made to close tolerances, ere held rigidly in position by tightening the two cap

The blades are tipped with "Prolite" Comented Tungsten Carbide and are supplied in the three following types:

TYPE A-Round end for 2in. and 3in. diameter cutters and Square and for 4in. and 5in. diameter cutters.

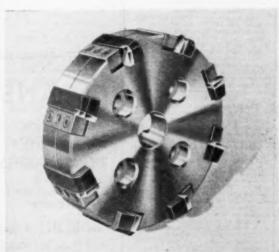
TYPE 8-For all cutters from 6in. to 8in. diameter.

TYPE C-For cutters of 9in. diameter and upwards.

SOLE AUSTRALIAN DISTRIBUTORS :

BRENCO Ptv. Ltd.

Melbourne: 113-119 Ballarat Rd., Footscray. MW1201, MW3471. Sydney: 280 Castlereagh St. MA1547, MA3796.



VANE PH METER

MAINS OPERATED

ADVANTAGES :

- I. No batteries. 2. Continuous indicat-
- ing. Fully direct reading. Shielded glass elec-
- trodes.
 5. Can be operated by unskilled labour.
 6. One single electrods lead.
 7 femperature compan-

- ead,
 femperature compenactor.
 actor.
 be actor.
 compensation of the plt.
 compensation of the plt.
 compensation of the plt.
 compensation for glass electrode error in the
 high alkalims range.



We are equipped to answer all questions and offer suggestions on pH determinations. Our Technicians have had wide experience in problems confronting industry relating to pH measurements. Repairs to all makes of pH Meters undertaken,

Vane Electrical Instruments Ptv. Ltd. Division of

GEO.H.SAMPLE & SOI

280 Castlereagh Street, SYDNEY. MA 6281

17-19 Anthony Street, MELBOURNE, FJ 4128.



E&SONS! CRYSTAL ST. PETERSHAM, N.S.W.LM4421

TENDERS FOR PATENTS

"MATERIAL SUITABLE FOR USE IN PACKING EGGS." The proprietors of Commonwealth

The proprietors of Commonwealth Patent No. 132,188, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the and vend the invention within the Commonwealth of Australia. Parti-culars obtainable from GRIFFTTH, HASSEL & GRIFFTTH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"PUMP."

"PUMP."
The proprietors of Commonwealth
Patent No. 133,088, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and vend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"IMPROVEMENTS IN HY-DRAULIC POWER TRANS-MISSION DEVICES."

MISSION DEVICES."

The proprietors of Commonwealth Patent No. 119,084, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, we and vend the invention within the Commonwealth of Australia. Darker like the commonwealth of Australia Darker like the commonwealth of Aust Commonwealth of Australia. Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"PROCESS FOR CONDUCTING ENDOTHERMIC CHEMICAL REACTIONS AND APPARATUS THEREFOR."

The proprietors of Commonwealth Patent No. 132,822, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, under the property of the standard property of the s and vend the invention within the Commonwealth of Australia. Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys. of 67 York Street, Sydney, N.S.W.

"HAIR CURLER."

"HAIR CURLER."
The proprietors of Commonwealth
Patent No. 128,381, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and yend the invention within the
Commonwealth of Australia. Despite the Commonwealth of Australia Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

The proprietors of Commonwealth
The proprietors of Commonwealth
Patent No. 132,945, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and vend the invention within the
Commonwealth of Australia. Particulars obtsinable from GRIEFITH,
HASSEL & GRIFFITH, Patent
Atternaya, of 67 York Street,
Sydney, N.S.W.

"HAIR CUBLER."

"HAIR CUBLER"
The proprietors of Commonwealth
Patent No. 128,364, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and vend the invention within the
Commonwealth of Australia. Particulars obtainable from GRIFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of 67 York Street,
Sydney, N.S.W.

van GELDER PULVERISING MACHINERY

The name van GELDER has attained pre-eminence in the Milling Engineering field be-cause of the outstanding efficiency and high standard of workmanship it represents.

Enquiries are invited for Pulverising Machinery of every description.

SPECIALISTS in the manufacture of PATENT SUC-TION FILTER DUST COL-LECTORS, AIR ASPIRATING PULVERISERS (Single and Duplex Type), MILLING AND MIXING MACHINERY, Etc., Etc.

J. P. van GELDER & Co. PTY. LTD. 66 Bay Street, Sydney

Cable Address: "Attrition."

'Phone: MA 9384.

INTERSTATE AGENTS: VICTORIA and TASMANIA : Gibson, Battle (Melb.) Pty. Ltd., 84 William St., Melbourne.

SOUTH AUSTRALIA : Pascoe & Co. Ltd., 282 Port Road, Woodville.



FANCY METAL BOXES KEGS AND DRUMS

RICHARD HUGHES

PTY. LTD.

A MODERN FACTORY AT YOUR SERVICE

Phone UJ 2121 (6 lines)

59-75 Queens Rd., Fivedock N.S.W.

ELECTRICAL GRID RESISTANCES

One of our many Specialities

Contractors to N.S.W. Railways and 30 years in N.S.W. Tramways.

TAYLOR & WEARING

UNION FOUNDRY George Street, Bedfern, N.S.W. Est. 1859. Tel.: MX 2118.

Harris Hutchinson Pty. Ltd.

MANUFACTURERS OF **ABSORPTION TYPE** DOMESTIC REFRIGERATORS

COMMERCIAL CABINETS

Rowden St., Alexandria, N.S.W. 'Phone: MX 1461 (6 lines)

CANISTER MANUFACTURERS

We make all the Latest Styles of Canisters and Containers, Deco-rated or Plain. For Paints, Oil, Tea. Lollies, Talcum Powder, Ointment, Tube Clips and all classes of Tin Packing. Metal Stamping done for the Trade.

MORRIS, McMAHON & CO.

Cowper Street, Marrickville, SYDNEY, N.S.W. 'Phone: LA 1330

GENERAL ENGINEERING MOTORISING AND INDIVIDUAL DRIVES PLANT MAINTENANCE

Eric Hayman

278 CITY BOAD SOUTH MELBOURNE Telephone: MX 2680

TENDERS FOR PATENTS

"BACK SIPHONAGE PREVEN-TION, ANTI-BACK-FLOW AND VACUUM BREAKING VALVE, AND METHOD OF OPERA-ACUM BREAKING VALVE,
ND METHOD OF OPERATION."
The proprietors of Commonwealth

ries proprietors of commonwealth Patent No. 122,193, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia commonwealth of Australia. Particulars obtainable from GREFFITH,
HASSEL & GRIFFITH, Patent
Attorneys, of 67 York Street,
Sydney, N.S.W.

"POWER ACTUATING TRANS-MISSION MEANS AND SWITCH."

The proprietors of Commonwealth Patent No. 106,669, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia. Parti-culars obtainable from GRIFFITH. HASSEL & GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"METHOD AND APPARATUS FOR FORMING GRANULATED SLAG."

The proprietors of Commonwealth Patent No. 119,046, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the mmonwealth of Australia culars obtainable from GRIFFITH, HASSEL & GRIFFITH, Patent Attorneys. of 67 York Street, Sydney, N.S.W.

"HOSE COUPLING."

"HOSE COUPLING."

The proprietors of Commonwealth
Patent No. 125,690, are prepared to
negotiate for the sale of their
rights in the above, or for the
granting of a licence to make, use
and vend the invention within the Commonwealth of Australia commonwealth of Australia. Parti-culars obtainable from GRIFFITH, HASSEL & GRIFFITH. Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"CONTINUOUS DIFFUSION

"CONTINUOUS DIFFUSION PROCESS."

The proprietors of Commonwealth Patent No. 121,372, are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make use and vend the invention within the Commonwealth of Australia. Partitainable fro

GRIFFITH HASSEL. GRIFFITH, Patent Attorneys, of 67 York Street, Sydney, N.S.W.

"IMPROVEMENTS IN OR RE-LATING TO PERMANENT MAGNET STRUCTURES", Com-monwealth Patent No. 121,102; ealth Patent No. 12 IMPROVEMENTS IN TING TO PERMANENT ELECTRO - MAGNETIC DR OB GENERATOR RELATING OR ELECTRO - MAC MOTOR OR GENI STRUCTURES", Comm Patent No. 123,342. — 7 prietors of the above wealth patents are pre Commonwealth wealth patents are prepared to negotiate for the sale of their rights in the above, or for the granting of a licence to make, use and vend the invention within the Commonwealth of Australia - Parti-culars obtainable from GRIFFITH. HASSEL & GRIFFITH. Patent Attorneys, of Tork Street, Sydney, N.S.W.

Pioneers of Copper and Asbestos Gaskets in Australia



Gaskets made for

Diesel Engines Motor Cars

Tractors Farm Engines

Motor Boats

Contractors ARMY NAVY AIR FORCE

NO ORDER TOO SMALL

NO ORDER TOO LARGE

Copper and Asbestos RINGS All Sizes

to 143 inch outside

Metric and Inch Measurements

SPECIALISTS in the manufacture of COPPER and ASBESTOS GASKETS GASKETS also made in any other material

ENOURIES INVITED

Fully Approved by Civil and Aircraft Production Authorities

J. H. FARRER & CO. PTY. LTD.

ENCINEERS

67 Wellington Street, Collingwood, Melbourne, Victoria ESTABLISHED 1931 Telephone: JA 4087

AIR MOTOR HOISTS 15 ewt. & 20 ewt.

The Brake is automatically applied when the control chains are released, or in the event of failure of the air supply.

The Wire Rope, of & inch diameter preformed construction, is positively guided on the drum, and rollers are provided to pre-vent it riding off.

The Drum is lubricated automatically from main gearbox.

"Broomwade" Air Motor Hoists can be supplied with Hand-pulled Trolley or Top Hook suspension.



Details from Accredited Australian Agents :

KNOX, SCHLAPP PTY, LTD. For Victoria, N&W, Sosth Autralia, Ta Mailbourns Sydney Adelaide Focken Hill MALLOCH BROS. LTD., Parth. For Western Australia INTERCOLONIAL BORING Co. Ltd., Brisbane For Quesatiand.

Phone: 8 4101. B 1941.

BROOM & WADE (Aust.) Pty. Ltd., Collins House, Melbourne.



You Wouldn't Stand For This



Then -Why put up with Switches that operate like a PISTOL SHOT?

R&T SILENT WALL SWITCH

Pleasing Appearance - Lifetime Service And Perfectly Silent Operation

AVAILABLE IN FLUSH AND SURFACE TYPES FROM ALL ELECTRICAL HOUSES THROUGHOUT AUSTRALIA

A PRODUCT OF RIEPER & TRUMBLE CURTIS PLACE, BRUNSWICK, VICTORIA

ACCEPTED TENDE

COMMONWEALTH

DEPARTMENT OF SUPPLY AND DEVELOPMENT.

Electric insecticidal spray m chines (Req .No. 2750). Slape, £8,168/5/-. H.

Pressure gauges (Req. No. 51). Russell and Russell, 2751) £508/19/-

Copper shellband tubing (Req. 50. 2752). Knox, Schlapp Ltd., No. 2752 16.795/4/-

No. 2755). Army Films (Req. Cinesound Productions Pty. Ltd.,

Diesel engine driven winch

Helen Company Company

£204/4/8. Kits (Req. No. 2840). Western Sectric Co. (Aust.) Pty. Ltd., Western £1.087/6/5.

Automotive spare parts (Req. Automotive spare parts (Req. No. 2841). Evan Broa., £840/1/8.
Portable Geirger-Muller ratemeter sets (Req. No. 2846). Austronic Engineering Laboratories, £870/7/6.

1570/7/6.
Scissors (Req. No. 2919). Briscoe & Co. Ltd., £237/10/-,
Concrete pipe (Req. No. 1378).
Hume Pipe Co., £217/10/-.

Linseed Oil (Req. Taubmans (Auckland) Pty. Ltd., £255/14/-.

Paint (Req. No. 1386). Lewis Berger & Sons, £862/10/-. Paint (Req. No. 3662).

Exide kathanode battery, complete (Req. No. 531). Exide Bat-teries of Australia Pty. Ltd., £847/0/6.

Vinegar (Req. No. 534). rooks (Aust.) Pty. Holbrooks Ltd. £254/16/3.

Close coir yarn mats (Roq. No. 538). M. Donaghy & Sons Pty. Ltd., £470.

Optical pyrometer target tubes (Req. No. 539). McKinl cher Pty. Ltd., £250/4/1. McKinlay, Flet-

Public address system (Req. No. 552). Amalgamated Wir (A'asia.) Pty. Ltd., £513/6/-. Wireless

Bolts and nuts (Req. No. 544). Duly and Hansford, £202/12/1. Exhaust Type Fans (File C.-/307/185). Australian General General 4/307/185).

Electric Pty. Ltd., £267/5/10.

Plain Conduit (File C.4/307/197). Ferguson & Co. Pty. Ltd., 6147/14/2

Modification Kits (File C. Glorad Engineering 4/316/9) 4/315/9). Glorad Services, £610/10/.-

Transformers (File C.4/316/79).
Standard Telephones & Cables Pty. Ltd., £154/2/6.

Plugs (File C.4/307/198). Rowe & Co. Pty. Ltd., £824/12/ H.

Kerosene Room Heaters (File C.4/362/35). B.D.H. Industries 35). B.D.H. Industries f1.294/6/3; Tecnico Ltd., Ltd. £13.873/5/-

Steel Forging (File C.4/371/ 236). Ralph McKay, £261/10/-. 16 M.M. Sound Projectors (File C.4/373/T1). Pyrox Ltd., £1,140. Measuring Rods (File C.4/376/10). McPhersons Ltd.,

4/376/10). £346/18/-.

Blue Serge (Req. No. 2731). Hobe Worsted Mills Pty. Ltd., Globe Wo £59,18/15/-.

159,18/15/Steam Cleaning Plants (Req. No. 248). Westcott, Hazell Engineering & Steel Ltd., £2,200.
Tachometers (Req. No. 2749). N.
H. Seward Pty. Ltd., £350.

H. Seward Pty. Ltd., £350.

Buckets, Shower, Canvas, Cylindrical (File No. C.4/201/25). Norman A. Beshar & Co., £941/9/2.

Seat Cushions (File No. C.-4/208/12). Latex Products Pty. Ltd., £740/19/-

Electric Potato Peeling Ma-chines (File No. C.4/307/108). James Balfour & Co. Pty. Ltd., £431.

Berets, Cloth, Dark Blue (File No. C.4/254/9). o. C.4/254/9). Latiners, £17,073. Canvas, Flax (File No. C.4/258/ 64). Davies Coop (Flax tries) Pty. Ltd., £957/14/8. Indus-

Waterproof Sheeting (File No.

C4/266/1991

Bramac Lid

Insulators (Req. No. 2864). Nilcrom Po Ltd., £215. Porcelains (Aust.)

Water Tube Boiler Unit (Req. No. 2878). Babcock & W. Australia Pty. Ltd., £13,960. Wilcox of Circular Chopping Blocks (Req.

No. 2932). Sussex Dispo Trading Co. Pty. Ltd., £265. Disposals & Pots (Req. Enamel Chamber Pots (Req. No. 2934). Metters K.F.B. Pty.

td., £214/10/4. Colosyl W.X. (Req. Ltd No. 2938). V. Richards, £481/16/3. Stemless Glasses (Req.

2939). Crown Ltd., £307/18/4. Crown Crystal Glass Pty.

Stemless Wine Glasses (Req. No. 2940). Crown Crystal Glass Pty. Ltd., £1,255/4/2.

Pty. Ltd., £1,255/4/2.
Varnish or Enamel Flat
Brushes (Req. No. 2944). John
Zevenboom & Co. Ltd., £628/16/11.
Football Jerseys (Req. No. 2981). Jason Knitting 4471/13/2.

Grey Blankets (Req. No. 2984). Thurlstane (Aust.) Pty. Ltd., Ltd.,

Thuristans fis,000. Grey Blankets (Req. Nos. 2996-7). Ballarat Woollen & Worsted Co. Ltd., £28,336/4/7; Ballarat Woollen & Worsted Co. Ltd.,

(Turn to page 72.)

When you think of-

SHOT

BLAST EQUIPMENT

you think of

O. GRANOWSKI, B.E.

549 CHURCH STREET RICHMOND, E.1. VICTORIA

1stCLASS Materials Workmanship



The mark of the craftsman, and the best in materials is seen in every industrial saw or knife that comes from Gregory Steel Products Pty. Ltd.

A full range of fast cutting, accurate circular saws and knives for every trade, including — Cross-cut, Grooving and Clean Cutting, Shaper Collars, Drink Saw, Grooving Combination Sets, Router and Dovetail Cutters, Planer and Buzzer Knives, Shaper Cutters and Moulding Form Cutters, Vertical Shaper, Buzzer Heads, etc.

Unconditionally guaranteed to be of Arst-class manufacture.

Greg-Steel

CIRCULAR SAWS AND KNIVES

MANUFACTURED BY

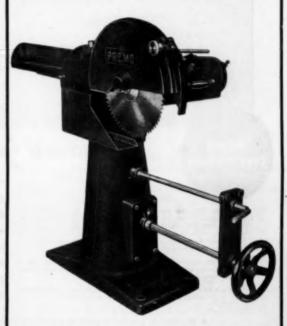
Gregory Steel Products Pty. Ltd.

Sawmakers and Industrial Knife Specialists 25 JOHNSTON STREET, COLLINGWOOD, VIC.

"PREMO"

Motorised Crosscutting and Trenching Machine

Built in two styles: HEAVY PATTERN with special 5 H.P. English motor in head, saws carried on motor spindle; LIGHT PATTERN with 22 H.P. motor, belt drive, to spindle.



In each case the Head of the machine can be swivelled for angular cuts and raised and lowered to suit the depth of cut. PRECISION MOVEMENTS on ball bearing slides.

TRENCHING HEADS and special Saws can be furnished.

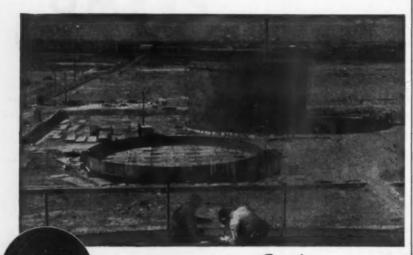
DELIVERY FROM STOCK

Send for leaflet giving full details

GOODALL & CO. PTY. LTD.

301 KENT STREET, SYDNEY, N.S.W.

'Phone: BX MALL



OUTSIDE CONSTRUCTIONS

... ONE SECTION OF GOODWIN ACTIVITIES WHICH INCLUDE:

+ FORGING

+ MACHINING

+ SHIPBUILDING

* AUTOMATIC WELDING

* SHEET METAL WORK * WONDERHEAT FIRES

GENERAL ENGINEERING

* RAILWAY ROLLING STOCK

We are fully equipped with the design staff, fabricating shops, outside areating teams, and gear, including mobile cranss for the construction of bulk tenks, structural work and heavy plate work.

When it's bulk tanks for oil storage, water supply, etc., factory extensions or processing plant—"give the plans to Goodwin."

The above illustration shows bulk storage tanks of 1,000,000 gallon capacity each at the new Situmen Refinery of the Shell Company of Australia Ltd., at Clyde, N.S.W., being site welded for speed and ease of arection—a division of our specialized outside construction facilities, which, apart from heavy plant and tank work, includes structural steel fabrication and eraction.

* We shall be pleased to quote to your drawings and specifications.

DWIN LIMITED

TELEPHONE MW 2934 (3 LINES) Head Office: 47 Forsyth St., Blackwattle Bay,

AND AT ST. MARYS AND PORT KEMBLA



8 ACRES OF PLANT AND TECHNICAL

(Continued from page 70.)

White Cotton Duck (Req. No.

2998). Davies Coop (Flax Indus-tries) Pty. Ltd., £313/10/-. Cleaning Cloth (Req. No. 3009). J. A. Witter & Co., £6,197/18/4. J. A. Witter & Co., 18,197/18/8.

Scythe Motor Mowers (Req. No. 1389). C. F. Willers, £256/12/6.

Batteries, 6v. 15p., (Req. No. 1390). J. H. Gardiner, £291/1/9.

Electric Air Compressors (Req. No. 1595). Lobe. Compressors (Req. No. 1589).

No. 558). John Carruthers & Co. Pty. Ltd.. £11,508/15/6.

Paint (Req. No. 560). William Felton & Co. Pty. Ltd., £611/14/6; William Lewis Berger & Sons (Aust.) Pty. Ltd., £219/5/1; British Paint (Aust.) Pty. Ltd., £324/0/6.

REPATRIATION COMMISSION

HEADQUARTERS.
Leathers and Fittings (O.T.),
t Repat. Hospital, Greenslopes.
oliv & Batenelor Pty. Ltd., Jolly & Batchelor Pty. Ltd., £245/7/9; Farleigh, Nattheim Pty. Ltd., £245/8/7.

Stainless Steel Ware at Repat. Hospital, Greenslopes. K. G. Luke Pty. Ltd., £1,159/16/-.

Toilet Requisites at Repat. Gen.
Hospital Canteen, Concord. Colgate-Palmolive Pty. Ltd., £375;
Johnson & Johnson Pty. Ltd.,

Stationery and Fancy Goods at lepat. Gen. Hospital Canteen, Repat. Concord. Edwards Dunlop & Co. Ltd., £250.

Chocolates and Confectionery at Repat. Gen. Hospital Canteen, Concord. Nestles Ltd., £331/7/-. Occupational Therapy Require-

Occupational Therapy Requirements at Lady Davidson Home. D. & W. Murray Ltd., £308/6/4.
Occupational Therapy Requirements at Repat. Hospital, Concord. Geo. Cull & Sons Pty. Ltd., £210/4/5.

Pathological Equipment at Repat. Hospital, Concord. H. B. Selby & Co. Pty. Ltd., £273/4/-. Rubber Supplies at Repat. Arti-

ficial Limb Factory, Sydney. Dun-lop Rubber (Aust.) Ltd., £334/4/8. Leather Supplies at Repat. Arti-James Yates Pty. Ltd., £1,300.
Towels at Repat. Gen. Hospital,
Concord. Dri-Glow Towels Pty.

Ltd., £429/3/9.

Surgical Instruments and Accessories at Repat. Gen. Hospital, Concord. Elliotts & Aust. Drug Pty. Ltd., £301/3/9.

Plant and Equipment at Repat. Gen. Hospital, Concord. The British Patent Paper Co. Pty. Ltd.,

Bootmakers' Supplies at Repat. rtificial Limb Factory. Far-

Bootmakers' Supplies at Hepat. Artificial Limb Factory. Far-leigh Nattheim, £207/17/10. Hearing Aid Requisites at Com-monwealth Acoustic Laboratory, Sydney. Eveready (Aust.) Pty. Ltd., £299/19/6; Planet Radio td., £299/19/6; E-ety. Ltd., £225/14/7.

Pty. Ltd., £225/14/7.
Drugs and Chemicals at Outpatient Clinic, Sydney. Bismuth Products Pty. Ltd., £329.
Woollen Varn at Repat. Artificial Limb Factory. Lincoln Mills (Aust.) Ltd., £3,994/15/10.
Wheel Chairs at Repat. Artificial Limb Factory, South Melbourne. P. Fallahaw, £1,143/12/-Elastic Webbing at Repat. Artificial Limb Factory, South Melbourne. Elastic Webbing (Aust.) Pty. Ltd., £473/3/5.

(Turn to page 75.)

24" Rise & Fall Table



A grade for every purpose.

Quickly and thoroughly cleans and polishes metal. Austral is a special Steel Wool, made up of long strands, produced

expressly for general machine-shop and factory use and for finishing aluminium. enamelware, copper, brass, porcelain baths and basins, glass cooking dishes, refrigerators, etc., and preparing surfaces for varnish, paint and lacquer. Industrial supplies are obtainable from



R.H.ARMSTRONG

44 King Street, St. Peters, N.S.W.

Also at Melbourne and Brisbane. 'Phone: LA 2641.



J. R. HALL & CO.

BUZZERS.

SANDERS.

BORERS, Etc.

WOODWORKING MACHINERY DIVISION

500 Bourke Street, Melbourne . . . M 1564

What does this Convey to you?



Is yours the archaic, expensive system of one man to one load in goods handling? Have you considered the enormous advantages in using gravity, earth's cheapest power, to solve your problems?

GRAVITY ROLLER CONVEYOR, inexpensive, durable, time-saving, is the engineer's answer to many a big bottle-neck in the production lines.

Big and small installations receive the same degree of attention, and we shall be most pleased to advise you, and furnish full particulars.

T. A. BORTHWICK Pty. Ltd.

576 PRINCES HIGHWAY, ST. PETERS, N.S.W. P.O. BOX 10, ST. PETERS. Tels.: LA 3295-6.

Representatives:-

Queensland: J. Wildridge & Sinclair (Bris.) Pty. Ltd., Elizabeth St., Brisbane. Underhill, Day & Co. Pty. Ltd., Adelaide St., Brisbans. South Australia: Plant Equipment Co. Ltd., 18 Hanson St., Adelaide.

T. MAIN & SONS

PTY. LTD.

Lambert and Baker Streets. North Richmond, El. VICTORIA

GENERAL IRONFOUNDERS

CUPOLA MANUFACTURERS

PATTERN MAKERS

WE SPECIALISE IN:

Machinery, Refrigerator, Chilled Rolls, Semi-Steel and Nickel Chrome Castings, Diesel Engine Castings in High Grade Alloy Irons, Ni-Resist, Ni-Tensyl High Duty Irons up to 30 Tons Tensile.

SOLE AUSTRALIAN AGENTS FOR

BALANCED BLAST CUPOLA

Thones: JA 4113, JA 4114.



THE A.C.C. ELECTRIC GYRATORY SIEVES GIVE FAST SIEVING with Low Cost

If your material is sievable, these machines will treat it. This is shown by the variety of uses which have been found for them as listed below:

- Foundry Sands and Metal Drosses.
- Confectionery Manufacture. .
- Food Production on Nutmeg, Curry and Milk Powders.
- Treatment of Minerals and Earths.
- Swarf removal from Small Turned
- Explosives and Tobacco Manufacture.
- Medicinal Powders and Drugs.
- Screen Analyses.

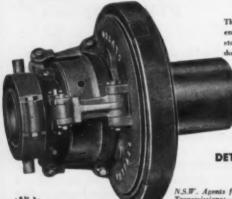
Are any of your products included in this list, or does it suggest a possible use with your product? If so, then write for our Bulletins AS.20 and AS.L.8.

AGENTS :

N.S.W.: Thes. McPherson & Son, Sydney and Newcastle S.A.: A. Noble & Son, Ltd., Adelaids. Q'LAND: Gilbort Lodge & Co. Pty., W.A.: Harris, Scarle & Sandovers, Ltd., Brisbane. Ltd., Brisbans. Vic.: C.A.V. Sales Co., Melbourne.

N.Z.: A. M. Satterthwaite & Co., Ltd., Christchurch.

NUTTALD Friction CLUTCHES



The important story of good engineering is the "inside" story. For the answers to the double problem of "stop and

start" let us send you the new detailed catalogue of NUTTALL Frietion-dire Clutches. Made in stres and ratings from fractional to 300 h.p.

SEND FOR NEW DETAILED CATALOGUE

N.S.W. Agents for NUTTALL Clutches and Variable-speed

We want to tell you the (The IMPORTANT story)

ERN TOOLS PTY. LTD.

Machine Tool Merchants and Transmission Specialists

ROSEBERY, N.S.W. Phone FF1291

(Continued from page 72.)

Cleansing Tissues, "Andrex" at Repat. Gen. Hospital, Heidelberg. H. Faulding & Co. Ltd., 1990. Rubber Goods at Repat. Artifi-

cial Limb Factory, South Mel-bourne. Dunlop Rubber (Aust.) Ltd., £614/14/8.

Paramisan Sodium Tabs. at Repat. Gen. Hospital, Heldelberg. Martin & Co. Pty. Ltd., 1672.

Stainless Steel Ware at Repat. Gen. Hospital, Hollywood. K. G. Luke Pty. Ltd., £1,255/16/6.

Methylated Spirits at Repat. Hospital, Springuank. Thompson & Harvey Ltd., £35.

Torch Batteries at Repat. Hosnital. pital, Springbank. At General Electric Pty. Australian £15/7/6

Floor Polish at Repat. Hospital,

Floor Pollsh at Repat. Hospital, Springbank. J. P. Alexander & Sons Lid., £116/5/-Kitty Kitchen Whip (Cream Substitute) at Repat. Hospital, Springbank. N. Cov, £52/10/10. Ale and Stout at Repat. Hos-pital, Springbank. Cooper & Sons Ltd., £289/6/7.

Cream at Repat. Hospital, Springbank. Alaska Ice Cr & Produce Co. Ltd., f233/16/-Cream

X-ray Developing Equipment at Repat. Hospital, Springbank. Kodak (A'asia.) Pty. Ltd., £1,400. Drugs, Druggist Sundries, etc., at Repat. Gen. Hospital, Spring-bank. A. M. Bickford & Sons Ltd., £2,500.

Surgical Boot and Shoe Uppers at Repat. Artificial Limb Factory, Adelaide. F. Stevens, 1875.

DEPARTMENT OF WORKS AND HOUSING.

Tubular Type Cafeteria Tables and Chairs at G.P.O., Sydney. National Art Metal Co. Pty. Ltd.,

Arc Welding Sets as follows:-Arc Weiling Sets as polows:

One 300/400 ampere Electric
Motor Driven, mounted on a
three-wheeled Trolley; thirteen
300/400 ampere Single Operator
Diesel, Engine Driven Sets,
mounted on two-wheeled Preumatic-tyred Trailers; fourteen Sets of Accessories. Mfg. Ltd., £12,046/16/7.

One Automatic Oiler Burner and Accessory Equipment, for Sectional Boller, at Customs House. Major Furnace and Combustion Engineers Pty.

Heating System at Kingston Post Office. Shaw & Stirling, £1,680.

SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION.

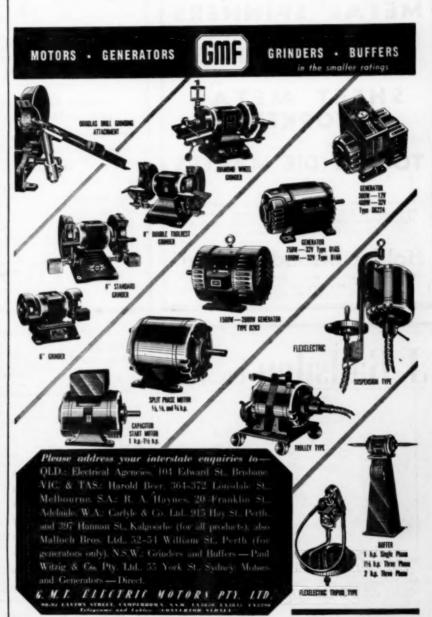
Radial Drilling Machine, 4 ft. 6 in., for Central Experimental Workshops. Gilbert Lodge & Co. 6 in., Ltd., £1.453.

Overhead Belt Sander, 6 in., for Central Experimental Workshops. McPherson's Ltd., £165.

Disc and Bobbin Sander, 30 in., for Central Experimental Work-shops. A. E. Supplies Ltd., shops. A. £429/10/-.

Universal Tool and Cutter Grinder, for Central Experimental Workshops. Gilbert Lodge & Co. Workshops. Gilbert Lodge & Co. Ltd., 1825.

(Turn to page 77.)



METAL SPINNERS METAL STAMPERS SHEET METAL WORKERS

TOOL & DIE MAKERS

Elactric Galleries, Canopies, etc., Ball Floats, Shower Heads, Flood Lights, E.P. Ware, Cadmium Platers, Chromium Platers, Electro Platers, Nickel, Silver, Copper, Oxidising, Electro Tinning, Brass Finishers, etc.

Holder Stroud Pty. Ltd.

Office and Works: Cnr. Bourks Road and Bowden Street, ALEXANDRIA, N.S.W. Thomas MX 2511

For Satisfaction & Service!

WATERPROOF PAPERS

(WET OR DRY)

CARBIDE OF SILICON AND GARNET GRITS

for all types of Sanding. A use in Every Trade.

Manufactured by LONDON ABRASIVES, LTD. formerly London Emery Works Co. Ltd., Tottenham, London, N.17.

Distributed by:

VIC.: HARDIE TRADING LDMITED, Melbourne, N.S.W.: SPARTAN LACQUERS PTY., LTD., Sydney, Q'LAND: SPARTAN LACQUERS PTY., LTD., Brisbane S.A.: HARDIE TRADING LDMITED, Messide, WA.: HARDIE TRADING LDMITED, West Perth. MU 7841. M 6007. B 8758. L 4191. And by other leading Wholesale Merchants in Queensland, South Australia, and Western Australia.

Representatives for Australia and New Zealand:

ESSEX R. PICOT PTY, LTD.

222 CLARENCE STREET, SYDNEY. Telephones: BX 4828 and BX 4829.

J. Gadsden Pty. Ltd.

Manufacturers of

PRINTED, AND PLAIN CANS. - STEEL CON-TAINERS. ALSO, CANVAS GOODS, CALICO AND HESSIAN BAGS

Jactories at Melbourne, Sydney, Adelaide, Fremantia, Hobert and Albury. NEW ZEALAND— Wallington, Christchurch, Auck-land, and Dunedin,

Head Office - Abbotsford Street, West Melbourne.

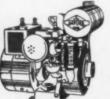
ELECTRIC LIGHTING PLANTS

12 & 32 volts 300 - 320 watts

PETROL ENGINES

One Horsepower 4-cycle Air Cooled

Why worry with oil lamps? These successful little electric lighting plants will flood your home with electric light at the snap of a switch. Light in weight light at the snap of a switch. Light in weight lamps, week-enders, carevans, yachts and smergency purposes anywhere. Send for fully illustrated literature on those famous units.



can carry (40
lbs.) and easily
adaptable to
drive your
equipment.
Runs 8 to 10
hours on one
gailon of
petrol. Popular choice of
scores of
well - known

float carbu rettor. Mag nete ignition.

PRICE £64 PLUS PACKING

This is the famous Amplion Petrol Engine. So light, a man

> Retail Price £35′10′6 plus packing

Quotations Manufacturers

Efficient air cleaner. Visible petrol filter. Sead for publication APC 6C giving full particulars and power curve.

Thone: LA 2528 (6 lines) (A'ASIA.) PTY. LTD.

36-40 Parramatta Rd., Camperdown, N.S.W.

ACCURATE STEAM MEASUREMENT means MORE PROFIT



You can reduce waste and save precious fuel if you cost the steam flow for each process in your plant with a

KENT RS/C STEAM METER

The lowest priced accurate steam meter made.

The Kent RS/C Shunt Steam Meter, although simple and accurate in operation, is strongly built and requires no attention other than periodical reading of the counter.

- · Accuracy Guaranteed.
- Simple to Install.
- Robust Construction.
- Trouble-free Operation.

Write for details of the Kent RS/C Meter

N.S.W.: D.S.K. Pty. Limited, Sydney. Vic, and Tas.: George Kent (Vic.) Pty. Ltd., Melbourne. S.A.: Pascoe & Co. Ltd., Adelaide. W.A.: Flower, Davies & Johnson Ltd., Parth. Qid.: Underhill, Day & Co. Pty. Ltd., Brisbane. N.Z.: Cery-Wright & Salmon Ltd., Wellington and Auckland.

Meters and Controllers for Fluids, Steam, Temperature, Gases, Ph, etc.



(Continued from page 75.)

Pantograph Type Engraving Machine, for Central Experimental Workshops. Alfred Herbert (A'asia.) Pty. Ltd., 1692/5/6.

Radial Drilling Machine, 3 ft. 6 in., for Division of Industrial Chemistry. Gilbert Lodge & Co. Ltd., £1,404.

Swing Sliding Bed Lathe, 21 in., for Central Experimental Workshops. Demco Machinery Co. Pty. Ltd., £2,472.

Swing Lathe, 17 in., for Industrial Chemistry. McPherson's Ltd., £1,029/19/9.

Stroke Shaping Machine, 24 in., for Division of Industrial Chemistry. McPherson's Ltd., 1710.

DEPARTMENT OF CIVIL AVIATION.

NEW SOUTH WALES

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Concrete Vibrators, Immersion Type, £1.885. Gilbert Lodge & Co. Ltd.; £505. Air Aid Pneumatic Tool Co. Pty. Ltd.

QUEENSLAND

BRISBANE CITY COUNCIL.

Pipes, 60 in dia, class "X", 268 ft., £589. Hume Pipe Co.

Pipes and fitting, welded steel,

Pumping and associated equip.
Camp Hill War Service Homes
Estate pumping station, £1,840.
Alfred Snashall, Anthon Pty. Ltd.
Westinghouse 13:20.13 ell cir-

cuit breakers with elec. clesing mechanisms, for use on 250 V d.c. battery, £1,187. Evans, Deakin &

WEST AUSTRALIA

SUPPLY AND TENDER BOARD.

Laundry Equipment, item 1, f1,035 ea.; item 2, f864 ea. Har-

die Trading Co. Ltd.; item 3, 2320. Wm. Adams & Co. Ltd.; item 4, £2,425. W. M. Couper & Company.

Clinic Switch Table; Short Wave Diathermy, Type 7526, item 1, £315; item 2, £130. Phillips Electrical Industries.

Gaiv. Dump Point Nails, 3 tons, 284. Scott & English (A'asis.) Pty. Ltd.

X-ray Equipment, £128. Watson, Victor; £321. S. Van Dal & Company.



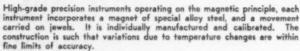


INDUSTRIAL INSTRUMENTS

FOR

MEASURING, COUNTING, RECORDING

R.P.M. INDICATORS



Accuracy is maintained to plus or minus 1% over a temperature range of 10-30 deg. C.

Standard R.P.M. Indicators are available in a wide range of types and sizes. Other Models up to 9in. dials.



Representing Smiths Industrial Instruments Ltd., England SALES AND SERVICE

N.S.W.: Aircraft Industrial Marine Instrument Co, Pty, Ltd., 279 Clarence Street, Sydney. MA 5791, VIC.: Keep Bros. & Wood Pty. Ltd., 200 Latrobe Street, Melbourne. FJ 1185. QLD.: Instrument Engineering Company, 32 Annerley Road, South Brisbane. XU 3228. S.A.: Newton, McLeren Ltd., Leigh Street, Adelaide. Cent. 8340. W.A.: Tough Instrument Service Co., 351 Murray Street, Perth. 8 7615.



STANDARD R.P.M. INDICATORS



R.P.M. INDICATORS

CURRENT TENDERS

NEW TENDERS

The following tenders have been called since our last issue. Current tenders which have been published in previous issues follow this section.

COMMONWEALTH

DEPARTMENT OF SUPPLY AND DEVELOPMENT.

Annealing Furnace. June 13. Deep Fat Fryers and Griddles with Hot Presses. June 18.

Food Mixers and Mincing Attachments. June 13.

Lighthouse Optical Apparatus. June 22.

Mattresses. June 13. Vegetable Peeling Machines. June

Steel Die Blocks, Purchase of.

Table Cloths. June 13. Tools and Gauges. June 15.

DEPARTMENT OF WORKS AND HOUSING.

C.I. Spigot and Socket Soil Pipes and Fittings (3, 4, and 6 in.). June

Hot Water Calorifiers (2). June

S.S. Kitchen Fittings. June 13. Steel Shelving. June 13.

GOVERNMENT BAILWAYS

DEPARTMENT. Steel Superheater Elements, for Locomotives. Extended to June 20.

STATES

NEW SOUTH WALES

DEPARTMENT OF MAIN BOADS. Steaming Coal. June 6.

Tungsten Carbide Cross Bits and Drill Steels. June 6.

FORESTRY COMMISSION. Harness Accessories, June Mack Wheel Rims, June 6. Mild Steel. June 6. Portable A.C. Grinder. June 6. Power Take-off. June 6. Spanners. June 6.

GOVERNMENT BAILWAYS. DEPARTMENT

Morticing and Wood Boris Machine (Sch. CE-8018). June 8.

MARITIMES SERVICES BOARD. Steam Engines (2) sets triple ex-pansion, surface condensing, Pur-chase of. June 7.

(Turn to page 78.)

NICHROME RESISTANCE WI THE WORLD'S BEST

Made in England

SOLE AUSTRALIAN AGENTS :

DOUGLAS WARMAN 6

241 FLINDERS LANE, MELBOURNE.

'Phone: JM 1508.

50 or 50,000

ALUMINIUM CASTINGS

Whichever your need - first get a quotation from

CLINGAN BROS.

99 CANTERBURY ROAD, BANKSTOWN, N.S.W. UY 1123 Specialists in the making of permanent moulds, and the gravity dis-casting of aluminium and all its alloys.



NEW TENDERS - Contd.

STATE CONTRACTS CONTROL BOARD. Accounting Machines. June 20.

Forage Harvester. June 6. Pick Attachment for Harvester. June 6

Foot Tamping Rollers, Sheep June 6

High Lift Fork Telescopic Truck, Petrol Operated, June 6.

SYDNEY COUNTY COUNCIL.

D.C. Switchboard, 240 volt for Pyrmont "B" Power Station (Spec. 1424). June 29.

Enamels and Lacquers. June 9. Fire Extinguishers (50) one gallon. June 5.

+ + SEE ALSO + + "LATE OPEN TENDERS"

Metai Clad Neutral Switching Equipments, 6600 volt, for sub-sta-tions (Spec. 1418). August 10.

Metal Clad Switchgear (11,000 volt, 250 MVA), for City Sub-station (Spec. 1382). August 17. Paints, Varnishes and Colours.

MISCELLANEOUS.

Auto Patrol Grader, 14,000 lb. weight, 10 ft. blade, 6 cylinder, pe rol motor, Purchase of, from Shire

of Gulgong. June 12.
Caravan, Four Wheeled, Pneumatic Tyred, for Shire of Amaroo.

Distribution Transformers, for Bega Valley County Council. June

Earthmoving Equipment: Diesel Tractor, about 60 H.P., complete with P.C.U., and angle dozer. Bipper, suitable for use with the above. Trailer, suitable for transport of above tractor/dezer, for

Shire of Boree, June 9. Electric Motor, Squirrel Cage Type, with Starter, for Shire of mut. June 12.

Grass Cutting Machines (3). Second Hand, Purchase of, from Municipality of Bankstown. June

Heavy Duty Motor Grader, for

City of Grafton. June 14. Motor Grader, Heavy Duty, Diesel Driven, not less than 20,000 lb. weight, with Engine at least 50 B.H.P., for Shire of Boelooroo. June 15.

Road Making Equipment: Diesel owered medium type road grader, 12000 lb. to 14,000 lb. weight. Trac tor, pneumatic tyred, kerosene owered, 15-20 H.P. Power greasing unit, suitable for motor vehicles and mechanical equipment. Low Level Float, end loading type for mechanical equipment up to 10 tons, with provision for attachment to truck. Kerosene cleaning ap-paratus for auto parts and machinery, for Municipality of Canter-June 19.

Speed Patrol Grader, Purchase of, from Shire of Waugoola. June

Submersible Centrifugal Pumpe (2) Electrically Driven, for Central Tablelands County Council. July

VICTORIA

CITY OF MELBOURNE.

Fabricated Steelwork for Gal-leries and Ladders (Spec. 719/E).

Gate Valves (2), 30 in. diameter (Spec. 718/E). June 19.

DEPARTMENT OF PUBLIC WORKS.

Central Heating System Extensions, for Melbourne University, June 6.

(Turn to page 80.)





S.A.: Neville Collins Limited, 154 North Terrace, Adelaide. CONTRACTORS TO STATE GOVERNMENT DEPARTMENTS

For grinding, separating and transporting powdered materials. Deliver a product of absolutely uniform finaness. Specially designed for pulverising earths, clays, pigments, barytes, ochres, colours, kaolin lime, precipitated colours, coal, etc.

This mechine, shown above, is made in two sizes and fitted with hinged hammers. It is frequently used for pulverised coal firing of small metallurgical furnaces and kilns and for grinding such materials as chalk, shale end gypsum to a fineness up to 200 mesh.

International Combustion Australia Ltd.

Head Office: 247 GEORGE ST., SYDNEY. BU 3334. Melh. Office: 360 COLLINS ST., MELB. MU 1491. Adelaide Agents: NEWTON, McLAREN Cen. 8340. Brisbane Agents: UNDERHILL, DAY. B 9973.



NEW TENDERS - Contd.

Fuel Hot Water Service, for Stanhope South. June 6. Hot Water Service Additions, for Kew Mental Hospital, June 6

Steel Buoys (12), for Williamstown. June 6.

GOVERNMENT BAILWAYS DEPARTMENT.

Brattice Cloth. June 28. Control Equipment. August 9. Sectional Water Tanks and Towers. July 26.

MELBOURNE HARBOUR TRUST.

Bronze Valves and Cecks (Spec. 49-50/338). June 28. C.I. Fullway and Reflux Valves (Spec. 49-50/339). June 28. Control Instruments for Cooling

Towers (Spec. 50-51/7). July 5. Fuel Oil. June 16.

Miscellaneous Items. June 16.

Sharpening Equipment. June 16.

Steam Driven Generator KW). Extended to June 16. Generators (10 Steam Pipe and Boiler Covering.

June 16. POSTMASTER-GENERAL'S

DEPARTMENT.

Electric Clocks, wall type (Sch. V.352). June 13.

MISCELLANEOUS.

Electrically Operated Pumping Unit (1500 galions capacity per minute), for First Mildura Irrigation Trust. June 13.

Oil Circuit Breakers (2) 6600 volt, 800 amp, 250 MVA and Five (5) 0000 volt, 800 amp, 150 MVA, for City of Footscray. June 5.

Power Graders (2), medium or light, kerosene or Diesel powered, for Shire of Gleneig. June 13.

Power Grader, heavy or mediumheavy, for Shire of Bet Bet. June

engine-driven Pumping Plant, and Piping suit working head of 200 ft., for Town of Sale. Ex-tended to June 13.

Road Traffic Control Signal Equipment, for City of Kew. July

WEST AUSTRALIA

GOVERNMENT TENDER DOARD.

Branding Hammers, for Timber Workers. June 8.

Brass Borings and Turnings, Purchase of, June 8.

Caravans, June 15. Electric Lamps. June 8.

Motor Spares. June 8. Portable Air Compressor Unit nd Metal Spraying Equipment. June 8.

Transformers (1000 KVA), for S.E.C. June 15.

CURRENT TENDERS

The following tenders have and are still current.

COMMONWEALTH

POSTMASTER-GENERAL'S

DEPARTMENT.
Accumulator Plates and Separators (Sch. C.6318). June 13.
Barretters (Sch. C.6293). July

Cable and Carrier Cable Sys-tems (Sch. C.6304). July 4. Canvas and Duck, for Mail Bags (Sch. V.6326). Aug. 10. Carrier Telegraph Equipment (Sch. C.6288). July 20.

Communication System between Sydney and Melbourne (Spec. C.-6157) Oct. 5. Condensers (Sch. C.6292). July

Faders and Gain Controls (Sch. 8315). June 8. C.6315). June 8. (Turn to page 82.)

In Association with

MINERALS PTY. LTD.

318 Botany Road, Alexandria, Sydney, N.S.W. Currie Street, Adelaide, S.A., and Perth, W.A.

Cable Address: "MINERALER." all States.



MINERALS (VIC.) PTY. LTD.

Ingles Street West, Port Melbourne, Vic. And 27 Elizabeth Street, Hobart, Tas.

Industrial Earths and Wood Flour Millers.

Mineral Earths & Pigments

ASBESTOS

For all Industries

K-M STEEL PRODUCTS

STANDARD RESIDENTIAL STEEL WINDOWS

FROM SOLE DISTRIBUTORS
FOR N.S.W.

"K-M" Steel Windows in standard types and sizes suitable for brick, concrete or wood construction. Every part is treated with "BONDSEAL" (Reg.) the protective coating. Write, 'phone or call for quotations and specifications.

WILLIAM ATKINS PTY. LTD.

HEAD OFFICE: 449-451 KENT STREET, SYDNEY.

Telegrams and Cables: "WILATKIN," Sydney.

G.P.O. BOX 1480.

'Phone: BX 5701 (5 lines)



This well-known trade mark on AUSTRALIAN COTTON products is your guarantee of QUALITY. Many years' experience guide our selection of raw materials. AUSTRALIAN COTTON products fulfil the most rigid requirements of regular Government inspection.

Suppliers of -

- STOCKINETTE Ideal for all industrial and domestic polishing purposes.
- MEAT WRAPS
 Light weight. Especially suitable for the
 meat export trade.
- UPHOLSTERY AND BEDDING MATERIALS Including Fibre Pads . . . Waddings . . . Cotton and Wool Flock . . . Garnetted Cotton and Garnetted Wools.
- INSULATING AND CARPET UNDERFELTS
 For homes, hospitals, hotels, offices, etc.
- COTTON SUPPLIES
 Highest quality ingredients ensuring cleanliness and hygiene.

Send your orders and enquiries to

90.92 O'RIORDAN ST., ALEXANDRIA STONEY. N.S.W.

FOUNDRYMEN

WE CAN HELP YOU!

STANCOL PREPABED CORE AND MOULD WASHES
COME READY FOR INSTANT USE.

ONE GRAPHITE BASE AND ONE REFRACTORY BASE FOR DIPPING OR SPRAYING.

THEY WON'T SETTLE OUT

STANCOL CORE GRIP—The perfect core sticker. Use it and forget it. The core breaks first.

Docker's A.—Z Iron Cement.

Stancol Mudding Compound. Stancol Stripping Aid.

Stancol Torch Spray.

Stancol Non-ferrous Core Coat. Volciay-Bentonita.

Enquiries to

STANDARD CHEMICAL CO.

80 KING STREET, MELBOURNE. 'Phones: MU 5478, MB 2062.
15 ROWE STREET, SYDNEY. 'Phone: BW 9216.

E. TRELIVING & SON LTD.

LIGHT SQUARE, ADELAIDE. 'Phone: Con. 4075.

Underhill, Day & Co. Pty. Ltd. T. & G. Buildings Queen Street, BRISBANE, Q'LAND 'Phone: B 8873 Western Machinery Co. Pty. Ltd. 494 Murray Street PERTH, W.A. 'Phane: BA 2486



BOILING
WATER
or
STEAM
Best for
CAFES
FACTORIES
CAMPS
Workshops
OR WHEREVER
HOT BEVERAGES

ARE REQUIRED FOR

LARGE PERSONNEL

AUTO-HOT Pty. Ltd.

Gowing's Building, Market Street, Sydney.
'Phones: MA 5070, MA 5846.

KNIVES AND DIES



For Footwear, Slipper, Glove, etc., Manufacturers.
Leather, Rubber, Fabrica, Felt, etc.
Steel Pressings; Machine Parts; Steel Toe Plates and Caps.

ALL PARTS OF GASKET KNIVES ARE REMOVABLE
AND INTERCHANGEABLE

F. & T. RYAN BROS.

142 Queen's Parade, NORTH FITZROY, VIC.

Telephone: JW 2347

CURRENT TENDERS - Coatd.

Insulated Wire (8ch. C.6283). June 6.

Lamps, Caps and Sockets (Sch. C.6324). Aug. 15.

Lead Sealers and Parts (Sch.

Lead Sealers and Parts (Sch. C.6170). Aug. 3.

Magnetic Type Recorders (Sch.

C.6303). July 27.

Mechanically Operated Springsets (Sch. C.6323). Aug. 1.

Metalworking, Grinding and Cut-off Wheels (Sch. C.8295). June 6.

Microphone, Stands, and Cable (Sch. C.6316). Aug. 1. Morkrum Printer Parts (Sch. C.-

Morkrum Printer Parts (Sch. C.-6285). July 20.

Motor Generators (Sch. C.6276). June 6.

Pipe Bushes and Ferrules (Sch. C.6321). June 6.

Portable Tone Test Sets (Sch. C.6287). June 27.

Post Office Scales and Weights (Sch. C.6284). July 18. Printed Forms, "S.E." Series (Sch. C.6332). June 15.

Printed Publicity Matter (Sch. C.6329). June 6.

Public Address Systems (Sch. C.6317). June 8.

Rectifier Elements (Sch. C.-6325). June 22.

Ringing Equipment (Sch. C.-6311). Aug. 1.

Routine Testing Equipment (Sch. C.6281). July 28.

(Sch. C.6281). July 25. Spindles, Steel (Sch. C.6286). June 13. Testing Instruments (Insulating Resistances), (Sch. C.6289). July

Tools, Leadworking, Measuring and Miscellaneous (Sch. C.6246). July 20. Transfers (Sch. C.6310). June

GOVERNMENT RAILWAYS DEPARTMENT.

13.

Diesel Powered Rail Cars (3 ft. 6 in. gauge). June 6.

DEPARTMENT OF SUPPLY AND DEVELOPMENT.

Accumulators. June 13.
Bath Towels. June 6.
Bedside Mats. June 27.
Bench Grinding Machine. June

Drilling Machines, Sensitive Type. June 8. Parachutes, Purchase of. June

Ifi.
Rings, Size Cover Type Q. June

Spare Parts, for Jeep. June 6. Tea and Glass Cloths. June 8.

DEPARTMENT OF WORKS
AND HOUSING.

Electric Domestic Hot Water System. June 13. Exhaust Ventilation Units (6). June 13. M.S. Pipe, 1,024 ft. of 16 inch

int. diameter. June 6.

Mechanical Services. June 6.

Stone Crushing Plant. Extended to June 13.

NEW SOUTH WALES

GOVERNMENT RAILWAYS
DEPARTMENT.
C.I. Locomotive Cylinders (Sch. CE-2714). June 20.

(Turn to page 83.)

CHEMICAL TANKS, DRUMS, CONTAINERS

coated against Acids and Alkalies Articles of all Shapes and sizes PLASTIC COATED

J. & F. BROCK

5 Inkerman Street, St. Kilda Vic. Tel.: LA 1437.



HIPSLEYS LIMI 27-45 PALMER STREET, SYDNEY

NEW TENDERS - Contd.

Coal Handling Equipment, for ake Macquarie Power Station Lake Macquarie Pos (Spec. 1263). July 5.

Concrete Pump, with 25 h.p., 415 volt., 3 phase electric motor (Sch. CE-1888). June 5.

Concrete Pump, with 25 h.p. lectric Motor (Sch. CE-1924). Electric June 19.

Dust Collectors (5), for Ultime Power Station (Spec. 1252). June

Journal Jacks (20 ten), (Sch. CE-3480). June 7.

Frequency Modulated management (Spec. 83). Extended Apparatus to June 14.

Plate Working Machine (Sch. E-1990). June 13.

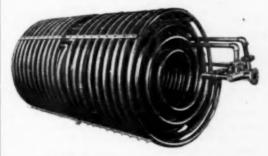
CE-1990). June 13.
Power Press (15 ton), with removable die plates (Sch. CE-1889). June 5.

Rectifier Units (4.000 KW) and Energy Dissipating Besister Units (Spec. 1258). Extended to Sept. 6. (Spec

Self Lowering Jacks, 50 ten capacity (Sch. CE-3444). July 6.

INDUSTRIAL COILS

For every Purpose



Industrial Coils for every purpose - Copper, Stainless Steel, and Mild Steel - to any size or design to suit your particular requirements.

Your inquiries are invited.

OFFICE AND FACTORIES - 220-6 PARK STREET Phone: MX 5115 (3 Lines) . SOUTH MELBOURNE

Transformers (4), 2,000 KVA, 33,000/2,200-volt. (Spec. 1265). June

Wheel Tyre Turning Lathes, for turning tyres when mounted on wheel sets (Sch. CE-1892), June 6.

DEPARTMENT OF MAIN

Membrane Scaling Compounds (200 gals.), for curing concrete. June 15.

Metalwork and Machinery, Oct.

Screening Machinery, for Gran-ville. July 11.

Structural Steelwork, for Granville. Extended to July 11.

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Centrifugal Type Pumping Units, (2), elect. driven, vertical spindle, for Homebush Substation. Extended to June 6. Centrifugal Type Pumping Unit, electrically driven, for Brimstone Guily Coal Mine. June 27. Combined Fassenger and Goods Lift, elect. driven and controlled

(Turn to page 84.)



FLOW INDICATOR

IS THE COOLING WATER CIRCULATING? IS THE BEARER GETTING THE OIL?

The oil or water spins a chromium-plated ring under a glass dome. If the flow stops, the ring stops spinning and warns you that something has gone wrong.



N.S.W.: H. G. Thornthwaite & Co., 43 Margaret St., Sydney (BX 3693). VIC.: Horrecks Roxburgh Fty. Ltd., S17-9 Little Collins St., Melhourne. S.A.: E. Treilving & Son Ltd., Light Square, Adelaids. Q'LAND: Parbury, Henty & Co. Pty. Ltd., 106 Edward St., Brisbans. TAS.: Douglas & Fraser, 41 Paterson St., Launcoston.



For RIVETS

in Aluminium, Brass, Copper and Steel, Precision Quality.

SCREWS

Rolled Thread or Milled from the Bar, A" to 12" diameter.

REPETITION WORK on latest type automatic

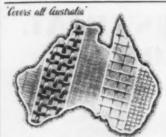
G. W. MARNER PTY. LTD.

388-394 ELIZABETH STREET, SYDNEY

Tolograms and Cables: "MARNER." Sydney.

"Phone: MA 1156.







етегу description manufactured in steel, galvanised, brass. copper, monel, tinned. bronze, stainless steel, silver.

For Mining Screens, Quarries, Harvesters, Grading Metal, Barley, Malt, Flour, Petrol.

WIRE WORK OF EVERY DESCRIPTION

Such as Baskets for Annealing, Heat Treatment, Plating and all types used in manufacturing Oven Racks, Griller Grids, Ice Chest and Refrigerator Trays - Hoslery Machine Belta, "Melwire" Ties,

TUBE AND PIPE WORK

Guards for Windows and Machinery, Chain Link Netting for Tennis Courts, Fencing, Partitions and Industrial Hand Trolleys. Conveyor Belts in all metals for all manufacturing DUPDOSES.

EST. 1852

Thone: JB 2841 (5 lines)

Telegrams and Cables: "Melwirwerks"

CONSULTANT AND ADVISER on all matters connected with

USTOMS TARIFF

Cases prepared and submitted to the Tariff Board

C. F. COMERFORD, Customs Adviser 18 QUEEN ST., MELBOURNE. 'Phones: MU 4605, MU 3454.



REVOLUTION



COUNTERS



LEVER or ROTARY TYPE-MODEL "CD"

A large engine revolution Counter

Specification-Counting capacity:9999999 Brass Case: 9in. x 7in. x 3jin. high. Weight: 13 lbs.

This Model used on-Ships' Engines Heavy Machine Tools Brewery Plant, etc., etc.

DELIVERY FROM STOCK

ALPHA ENGINEERING CO. PTY. LTD.

WORKS: 42-44 Layton Street. CAMPERDOWN, N.S.W. 'Phones: LA 3256-7.

CITY OFFICE: 30 Greavener St., Phones: BU 2007, BW 7307.

CURRENT TENDERS - Contd.

Outfall Treatment Bondi

Concrete Mixing and Batching Concreie Mixing and Batching Plants (2 or 3), approx. capacity 20 cu. yds. per hour. June 27. Electrically driven Centrifugal Type Pumping Units (2), for Caringbah. June 27. Pumping Unit, Electrically Driven, Centrifugal Type, for Killara. Extended to June 6. Pumping Units (2), Electrically Driven, Contrifugal Type, for Coledaic. Extended to June 6. Vertical Spindle Centrifugal Type Pumping Units (2), electric-Type Pumping Units (2), electric-Type Pumping Units (2), electric-

Vertical Spindle Centrifugal Type Pumping Units (2), electric-ally driven, for Upper Cordeaux. July 25.

SYDNEY COUNTY COUNCIL.

Air Break Isolating Switches, for Support Insulators (Spec. 1386). June 15.

Booster Regulators, for Low Voltage Distributors (Spec. 1384).

Cable (33,000 volt.) and Pilot Cable (33,000 volt.) and Pilot Cable (Spec. 1423). June 29. Coal Handling Plant, for Bunnerong "B" Power Station (Spec. 1400). Extended to June 15. Compensators and Belays, for Voltage Regulating Equipment (Spec. 1407). June 22. Galvanised Screwed Conduit.

June 8. Low Voltage Cables, varnished cambric insulated (Spec. 1412). June 15.

Metal Clad Switchgear (33,000 olt.), for Homebush Subvolt.), station (Spec. 1403). Aug. 17.

Oil Circuit Breakers, 11,000 volt., 139 MVA Indoor cubicle type (Spec. 1411). June 8. Packing Ring Segment Sets (3). June 7. Oil Immersed Current Limiting Reactors for City Sub-station (Spec. 1348). Extended to June 29.

Paper Insulated Lead Covered Cable, high (Spec. 1414). June 15. Transformers Sub-statio low voltage

Power Transformers
R.V.A.), for Sub-stations (Spec. 1354). Extended to June 8. Set of Blading, for Bunnerong Power Station. June 14.

Storage Battery and Battery Charging Equipment, for City North Sub-station (Spec. 1400). June 22

Substation Belay Group Equip-ment, for City A.C. Network Sig-

(Turn to page 85.)





OSMOND CUT-OFF MACHINES

> HIGH SPEED ABRASIVE WHEEL AND METAL-SAWING MACHINES

> > Wet or Dry Cutting Types

Invaluable quickly cutting Hard or Soft Steels to Zin. diameter, Brass, Aluminium, Plastics, Ceramics in Bars, Angles, Tubes and irregular section

FARLY DELIVERIES

Sole Australian Distributors :

HAWKER RICHARDSON & CO.

209-215 WILLIAM STREET, MELBOURNE. Central 6573.

CURRENT TENDERS - Contd.

nal Equipment (Spec. 1408). Aug.

Voltage Cables, high and medium, for Bunnerong Power Station (Spec. 1415). June 29.

MISCELLANEOUS.

Calf Dozer, for Municipality of Canterbury. June 16.

Centrifugal Sludge Pump, Elec-

Centrifugal Sludge Pump, Elec-trically Operated, for Shre of Shoalhaven. June 28. Crawler Tractor, 45-60 h.p., flit-ted with an Angle Dozer, for Shire of Eurobodalla. June 12. Crushing Plant, for Shire of Tenterfield. June 19. Diesel Oil, Power Kerosene and Motor Spirit (35,500 galls. in all), for Shire of Snowy River. June 12.

REPETITION SPECIALISTS * 301 HENDERSON ROAD, ALEXANDRIA, N.S.W. ALLANDRIA, N.S.W.
approved A.LD. Inspectors,
apatan and Auto Lathe
fork to 1jin. capacity.
hread Rolling, Freas Metal
forks, Sheet Metal Works,
teel Fabrication, Oxy and
Electric Welding. Diesel Powered Boad Bollers (2), 6/8 tons, for Municipality of Canterbury. June 5.

Diesel Boad Roller, 10-12 tons weight, Purchase of, from Cop-manhurst Shire Council. June 19.

Electrical Accessories:-Hard drawn bare copper conductor; In-sulators, Insulator Ironwork and sundry Ironwork fittings; Transformers, single and three-phase, for Namoi Shire Council. June 5.

Heavy Duty Motor Grader, Diesel Powered, 12 ft. Blade, with Scarifier, for Shire of Barraba. June 9.

Items of Road Plant:—Bull-terrier Grader—powered by Inter-national 1.12 Engine, 8 ft. blade, and fitted with scarifier, weight 7,800 lb. Fair running order; Crude Oll Roller, weight approximately 13 tons—rear wheel broken. Not in running order; Tar Kettle—200 galls. capacity, mounted on steel wheels; Engine —approximately 18 h.p., mounted on trailer. Pneumatic wheels, but not shod, Purchase of, from Shire of Lyndhurst. June 23.

Items of Equipment:-Motor Patrol Grader: Heavy Duty Patrol Grader, Tandem, or 4-wheel Drive, fitted with Scarifier and 12 ft. Blade, powered by an engine of at least 60 H.P.; Tractor: Crawler at least 60 H.P.; Tractor: Crawler Tractor of approx. 40 H.P. capa-city, suitable for use with Power Control Unit and Angledozer. Tenderers are invited to tender separately for a P.C.U. and Angle-dozer, suitable for the machine they propose to supply; Air Com-pressor: Portable Air Compressor THE Hall Mark OF THERMOMETER ACCURACY

The Thermometer for Laboratory and Industrial Use.

MODEL 35.—Cuaranteed accurate to .5% deflection; unaffected by reasonable vibration or over-temperature, and can be read without removing from solution. Unlike glass thermometers, they can be immersed in ANY solution at ANY temperature without preheating or fear of breakage, and give IMMEDIATE ECCURATE registration of temperatures.

MADE FROM STAINLESS STEEL

The non-conducting protective sheath can be used as a holder when making tests by acrewing thermometer through cross holes provided.

Ranges available: -10° to 110° C. and 20° to 220° F.

Other ranges in course of development.



but accurate and dependable as ANY size Rototherm.

Neat and compact, this Rototherm can be carried in vest pocket. Designed for engineers or chemists' personal use, Rototherm Model No. 53 Pocket Thermometer is individually tested to a high standard of efficiency, and has an accuracy guarantee of \mp half of 1% of full scale deflection.

Head and stem are of stainless steel. The dial, lin. dia., is clearly and permanently calibrated and easily read. As with all Rototherm Thermometers, these Focket Models are unaffected by reasonable vibration and over-temperature. Ranges available: 0° to 200° F. (safe to 225° F.); 0° to 300° F.; 0° to 150° C.

Other ranges in course of development.

'Phone to-day and our representative will call and advise you on your heat-measuring problems

of the Trailer Type, fitted with pneumatic tyres, having a capacity of approx. 100 cu. ft. of free air per minute and operating pressure of 100 lb. per sq. inch; Bitumen Sprayer: Trailer type Bitumen Sprayer of capacity of between 300 and 500 gallons, fitted with Spray Bar, power-driven

pump and heating unit, for Tumut Shire Council. June 5.

Items of Plant:-Mediumweight 10,000 to 12,000 lb., Diesel Power Grader; 48-53 h.p. Diesel Crawler Tractor, fitted with 3-14 c. yd. Overhead Loader; one 5-

(Turn to page 86.)



Unsurpassed for repetition Manufacturing

FREE CUTTING BRASS MANGANESE BRONZE HOT FORGING BRASS MUNTZ METAL MAVAL BRASS ARCHITECTURAL BRONZE COPPER NICKEL SILVER AND OTHER SPECIAL

Also buyers of non-ferrous scrap metals.

RODS, BARS & SECTIONS

PTY. EXTRUDED METALS ESTABLISHED 1929

HAMSTEAD ROAD. MAIDSTONE, W.19. VICTORIA

POSTAL ADDRESS: BOX 61, FOOTSCRAY, W.11, VICTORIA

TELEGRAMS AND CABLES: "BRASSCO", FOOTSCRAY

TELEPHONE: MW 2311 (4 LINES)

CANAL BANKS PHONE OFF RICKETTY STREET MU 1357-8 MASCOT, N.S.W.

CURRENT TENDERS - Contd.

Tyne Ripper; one Low Loader Trailer—capacity 10-12 tons, not Semi-Trailer Type, for Shire of Burrangong. June 9.

Mechanical Equipment:—Grader, weight not less than 12,000 lb.; Set of 3-Gang Mowers; one small Tractor, suitable and capable of drawing mower and general utility; one Trench Cutting Ma-chine, suitable for Trenching 3-4 feet, for Municipality of wellbrook. June 7. Mus

Motor Grader, medium type, for

Shire of Manning. June 9.
Plant:—Motor Grader-Scarifieir,
of approximately 13,000 lb. weight,

HARD CHROME PLATING for Building Up DIES, GAUGES, SHAFTS

Woodward & Thurston Ptv. Ltd. 308 St. John's Read, GLEBE SYDNEY, N.S.W. 'Phana: MW 2871 (2 lines).

fitted with 10 ft. blade; Tractor-Dozer, of approximately 85 h.p., for Shire of Demondrille. June

Portable Air Compressor, 100-160 cu. ft. capacity, new or re-conditioned, for Shire of Tallaganda. June 14.

Power Grader, approx. 8-10,000 lbs., for Municipality of Liverpool. Extended to June 6.

Road Grader, Medium, Diesel Operated, for Municipality of Barraba. June 12.

Switchgear, truck type (11,000 v.), for Shire of Blacktown. July

Tractor, approximately 100 h.p., fitted with Trailbuilder and P.C.U., for Shire of Gloucester. fitted June 7

crawler - track with Diesel engine and power control unit, for Canobolas Shire

Council. June 7.
Tractor, for Drawing Gang
Mowers, and three (3) Gang
Mowers, each 36 inch cut, for Mowers, each 36 inch cut, for Tweed Shire Council. June 13. Truck Type Switchgear (11,000 v.), for Shire of Blacktown. July

VICTORIA

GOVERNMENT BAILWAYS DEPARTMENT.

Additions to Hot Water Service, for Kew Mental Hospital. June

All Geared Head, S.S.S. Lathes (12-17 inch swing). June 21.
Automatic Printing Machine.
Extended to June 14.

Common Battery Switchboard, floor type. June 7.

Engraving Machine. June 14. Extensions to Central Heating System, for Melbourne University. June 6 Fuel Hot Water Service, for

South Stanhope. June 6.
Grinding Machines, double-Grinding Machines, double-ended. June 14. Insulated Copper Wire. June 21.

Isolators and Air Switches. June 21. Break Lathes, 12 inch and 17 inch. June 21.

P.A.B.X. Equipment, Manual elephone Switchboard Power Telephone Switchboard Power Plant and Telephones. June 7. Portable Engine Cylinder Boring Bar. June 14.

Power Plant and Telephones. June

Rail Inspection Cars. Supervisory Control Equipment, Control Desk Key Panels and Diagram Panels. Aug. 9. Switchboards and Telephones.

June 7. Telephone Cable. June 7. Universal Milling Machinery.

June 14. Wire Mattresses. June 21.

CITY OF MELBOURNE. O.H. Travelling Cranes, electrically operated (2), 10 ton (Spec.

704/E). June 14.
Road Traffic Centrel Signals.
Extended to June 21. Steel Shelving (Spec. 715/E). June 19.

DEPARTMENT OF CIVIL AVIATION.

Altimeter Settings Indicators (Sch. 292). June 20.
Carrier Telephone Equipment
(Sch. 295). June 20.
Radio and Electrical Test
Equipment (Sch. 294). June 27.

(Turn to page 87.)

The Finest House in Australia for Engravings of Every

Description

The Randle Photo Engraving Co.

Photo. Engravers, Stereotypers, and Designers

RANDLE HOUSE. 73 FLINDERS STREET, DARLINGHURST, N.S.W.

'Phones: FA 3158-9

HARDWARE WELDON



Manufactured by W. H. WELLS PTY, LTD.

137-135 Abbotsford St., Nth. Melb. Interstate Representatives :

N.S.W., Qid. & N.Z.: Essex R. Picôt Pty. Ltd., 222 Clarence St., Sydney, South Australia: Wm. C. Keany, 141 Rundle St., Adelaide. Western Aus-tralia: Associated Distributors, 747 Hay St., Perth.



CARR FASTENER CO. OF AUST, LTD. ALBERTON I. . . SOUTH AUSTRALIA

COAL & COKE

for Manufacturers, Blacksmiths, BEST STEAMING COAL

for all classes of Boilers and Household purposes

PROMPT DELIVERY JONES BROS. COAL

PTY. LIMITED Bridge Road, Pyrmont, Phone: MW 2091 (5 lines)

CURRENT TENDERS - Contil

DEPARTMENT OF WORKS AND HOUSING.

Overhead Travelling Crane (2), for Williamstown. June 13

MELBOURNE AND METRO-POLITAN BOARD OF WORKS.

Concrete Mixer-agitator Equipment, for Upper Yarra Dam. June 20.

Concrete Production Plant. June

Copying Camera (dark room type), Process Lens and Whirler. June 6.

Flat Tracing Paper (17 x 27 inches), 40 reams. June 20.

Mineral Fillers. Extended to June 6.

Pumping Equipment, for Concrete, for Upper Yarra Dam. June

MELBOURNE HARBOUR TRUST.

Black Steel Wire Rope (27,500 ft.). June 9.

C.I. Bollards (26). June 3. Steam Driven Generator, 10 K.W. June 3.

POSTMASTER-GENERAL'S DEPARTMENT.

Conduit and Conduit Fittings (Sch. V.354). June 27.

Motor Covers, second-hand, Purchase of (Sch. V.359). June

Motor-cycle Parts (Sch. V.358). Tool Steel (Sch. V.351). June

6 Used Bicycle Parts, Purchase of (Sch. V.353). June 13.

STATE ELECTRICITY COM-MISSION.

Belt Conveyor System (Spec. 50-51/4). Aug. 2. Bulk Fuel Oil (Spec. 49-50/319).

June 7. Control Cable, V.R., or P.C.I. (Spec. 50-51/1). Aug. 16. Conveyor Belts, for Bucket Wheel Dredger and Overburden Spreader (Spec. 49-50/330). June

Equipment of Centralised Con-trol of Consumer Loading (Spec.

49-50/171). June 21.
Horizontal Centrifugal
(Spec. 49-50/321). June 7.
Main Distribution Boards

(400 V.), and Air Circuit Breakers (Spec. 49-50/296). Extended to 14.

Motor Operated Fullway Valves

Motor Operated Fullway Valves (Spec. 49-50/338). June 28.
Outdoor Switchgear and Accessories, 66,000 and 22,000 volt. (Spec. 50-51/6). Aug. 16.
R.C. Foundation and Cooling Tower, for Hamilton Generating Plant (Spec. 49-50/337). June 7.
Switchgear (220,000 volt.) and Accessories (Spec. 49-50/251). Extended to July 26.
Telephone Cable (Spec. 49-

Telephone Cable (Spec. 49-50/291). July 12.
Telephone Cable Loading Coil Assemblies (Spec. 49-50/322). June Cable (Spec. 49-

(Turn to page 88.)

COMMUTATORS

FOR REPLACEMENT & EQUIPMENT PURPOSES

Incorporating highest quality materials and workmanship, Wernard Commutators are available in sizes ranging from 3 to 300 segments. Suitable for high-speed motors from the smallest fractional h.p. units up to those rating 100 h.p. and also for starters, generators and rectiliers.

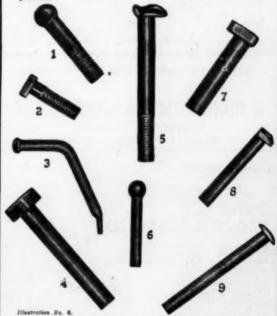
J. WERNARD & CO. STANMORE, N.S.W. LASSISS. AGENTS: J. H. WILKINSON, 289 Flinders Lane, Melbourne. Cept. 1800. ELECTRICAL REPAIR CO. PTY. LTD., 49 Elizabeth Street, Brisbane, Qld. B 0187.

BALL HEAD PIECES BARREL KNOBS . . .

SMALL CRANK HANDLES

these and any other special parts such as special shaped-head bolts, heads with one or two flats, eval-neck bolts made to design, sketch or sample. Ain. to jin. in diameter and up to tin. long, in black or bright finish.

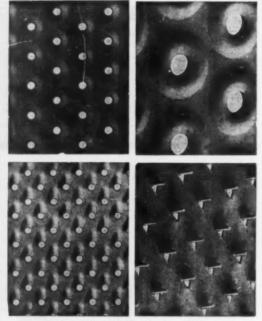
Consult our technical staff for the solution of your fastening



teelcraf

Pty. Ltd. 206 - 210 Willoughby Road, Crow's Nest, Sydney, N.S.W.

Telephone: XB 4461



Holes for Washers, Shredders and Graters.

PERFORATED METALS FOR ALL PURPOSES

D. RICHARDSON & SONS Ptv. Ltd.

FOOTSCRAY, VICTORIA

Telegraph: "PERFMETAL," MELBOURNE.

CURRENT TENDERS - Contd.

STATE RIVERS AND WATER SUPPLY COMMISSION

Electric Motors (40), 230-400 volt., 2-25 h.p. June 6.

Electric Pumping Units (4), motor-driven, for Red Cliffs. June

Pressure Pipes, 126 miles. inch diameter, material either Asbestos Cement, Cast Iron, or Spun Iron. June 20.

MISCELLANEOUS

C.I. Asbestos Cement Pipes, for Beaconsfield. Municipality of June 9.

Garbage Handling P. City of Fitzroy. June 26. Plant, for

Items of Plant:-Diesel Power Grader, 10-12,000 lb.; Diesel Crawler Tractor, 43-82 h.p., fitted with overhead Loader; 5 Tyne Ripper; Low Loader Trailer, cap. 12 tons,

for Shire of Burrangong. June 9. Plant-Front End Loader, with Pneumatic Tyres, and Concrete Mixer, Portable, Power, 3 cu. ft., for Shire of Maffra. June 13.

Power Grader, not less than 70 h.p., and Tractor, between 65 and 90 h.p., equipped for use as Bulldozer or Angle Dozer, fo Shire of Wycheproof. June 10. for

Pressure Pipes, 6,400 lin. ft. of 12 inch diameter, for Moe Water-works Trust. June 20.

Steel Tram Line, 2 ft. gauge (Rails 25 lb. per yard), Purchase of, from Shire of Alexandra.

Water Filtration and Purifica-tion Plant:—Flocculating and Sludge Scraping Mechanisms; Filter Control Valves; Bate. Con-trollers, Indicators, and Connect-ing Pipework; C.I. Pipes and Fit-tings, for Treatment Plant Units; Chemical Dry Feeders, etc.; Solu-tion Mixing Equipment, Chlorin-ator Equipment, etc., for Mildura Urban Water Trust. July 10. Water Flitration and Purifica-

Water Purification Plant: Flocculating and Sludge Scraping Mechanism; Filter Control Mechanism; Filter Control
Valves; Filter Rate Controllers, etc.; Cast Iron Pipes and Fit-tings; Supply of Chemical Dry Feeders, for Shepparton Urban Water Works Trust. June 21.



STEEL SPROCKET CHAIN

Formed from special steel strip, heat-treated under pyrometric control and tested for pitch and tensile strength.

Links No. 42, 42K1, 45, 5i, 51K1, 52, 52K1, 55 and D (or 724).

There is a big demand for Sunshine Steel Sprocket Chain, and intending buyers are advised to place their orders early.

H. V. McKAY MASSEY HARRIS PTY, LTD. SUNSHINE HARVESTER WORKS, SUNSHINE, VIC.

Manufacturing also - Bright Steel Shafting, Welded Coil Chain ENGINEERING SALES DEPARTMENT: 401 COLLINS STREET MELBOURNE, C.I. 'PHONE: MU 4379.

QUEENSLAND

BRISBANE CITY COUNCIL. Cable, 33,000 volt., and Pilot

GOVERNMENT RAILWAYS DEPARTMENT

Diesel Electric Locomotives (10).

STATE ELECTRICITY COM-MISSION.

Alternator, 6.6 K (Spec. 194). July 19. 6.6 KV. 125 KW

C.I. Pipes and Specials, C.I. Twin Strainers and C.I. Gate Valves, for Air and Oil Cooler Circulating Water (Spec. 212). June 21.

C.I. Pipes and Specials (Spec. 211). July 12.

Generating Plant, gas-cum, engine driven, for (Spec. 208). June 7. Charleville

Control Equipment, for Circulating Water System (Spec. 215). July 19.

Control Equipment, for Circulating Water Systems (Spec. 177). June

Generating Plant, gas-driven (Spec. 219). July 5. gas-cum-oil

Pipes and Specials, C.I., C.I. Twin Strainers and Gate Valves, for Air and Oil Cooler Circulat-ing Water. June 21.

Power House Switchgear, law tension (Spec. 203). June 21.
Power House Switchboards (Spec. 195). Aug. 9.

Steam and Feed Water Valves for Boilers, Wide Bay Regional Electricity Commission (Spec. 193). Steam and Water Valves, high ad low pressure (Spec. 193). and low pressure (Spec. June 21.

Steam Turbo Alternators (Spec. 200). Aug. 30.

Ext. to June 21.

Steam Turbo Alternator (Spec. 196). Aug. 16.

Switchgear, L.T., Power House Spec. 203). June 21. Water Tube Boilers (Spec. 200). Aug. 30.

(Turn to page 88.)

METAL SPRAYING

(Schoop Process)
RUST-RESISTING COATINGS
METAL COATINGS PTY.
LTD.

16 Bridge Road, STANMORE N.S.W. :: "Phone: LA 2833 Anti-Corrosive Engineers and Sand Blasters.

MISCELLANEOUS.

Equipment—Electric Generating Set, portable; Earth Boring Machine; Portable Power Driven Saw, for Townsville Regional Electricity Board. June 5.

Low Voltage Sub-station Equipment, for Townsville Regional Electricity Board. July 17.

Pumps and Motors, for Chinchilla Shire Council. June 12.

SOUTH AUSTRALIA

SUPPLY AND TENDER BOARD.

Carrier Telephone System.
June 19.

WEST AUSTRALIA

GOVERNMENT TENDER BOARD

Cotton Waste, 100 tons, for Railways. June 15.

Diesel Mechanical Locomotives (18). July 20. Diesel Electric Main Line

Diesel Electric Main Line Locomotives (48). July 27. Equipmen, 50 Cycle, for State Eng. Works. June 8. Floating Dredge Plant. June 22.

Floating Dredge Plant. June 22. Floating Dredge Plant. Extended to June 22. Steam Travelling Cranes. June

Travelling Crane, 40 tons, for Railways. Extended to June 8.

NEW ZEALAND

HYDRO ELECTRIC DEPART-MENT.

Outdoor Switchgear, 110 k.v.

Transformer Banks, 27,777 k.v.a. (4), end spare unit. June 13.

Late Open Tenders

NEW SOUTH WALES

GOVERNMENT RAILWAYS
DEPARTMENT.

Chrome Plates, Engraved Ashtrays (Sch. CE-2744). June 8. Fork Lift Trucks, capacity 6,000 lb. (Sch. CE-6278). June 5. Friction Screw Press, 70-80 ton

Friction Screw Press, 70-80 ton cap., 7 inch stroke, belt driven, for hot or cold work, Purchase of. June 7.

Induction Motor, 71 h.p.; 5-step Drum Controller; 5-min. rated Register; 3 h.p. Solenoid Brake and Double Pole, Iron Clad Limit Switch (Sch. CE-8036). June 19. METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Railway Dogspikes and Fishplate Bolts and Nuts. June 13.

SYDNEY COUNTY COUNCIL. Cement. June 9. Industrial Protective Gloves.

June 8.

Ready Mixed Concrete. June

MISCELLANEOUS.
Generating Sets:—d-Cylinder VXA Diesel Engine, 76 H.P., 428 R.P.M., Direct coupled to Alternating current generating 50 K.V.A. Complete with Switchboard, with all necessary equipment; 3-Cylinder VXA Diesel Engine and Alternator, 57 H.P., 428 R.P.M. Direct coupled to Alternator. Alternating current generating 31.3 K.V.A. Complete with Switchboard with all necessary equipment, Purchase of, from Municipality of Peak Hill.

Petrol, Distillate Fuel and Lighting and Power Kerosene, for Snowy Mountains Hydro Electric Authority. June 7.

VICTORIA

STATE RIVERS AND WATER SUPPLY COMMISSION.
Steel Bar Bending and or Straightening Machine. June 13.

SOUTH AUSTRALIA

GOVERNMENT BAILWAYS
DEPARTMENT.

Mobile Crane, 5 ton capacity.

June 15.

MISCELLANEOUS.
Steel Joists, for District Council
of Tatiars. June 14.

DEPARTMENT OF RAILWAYS-NEW SOUTH WALES.

TENDERS enclosed in sealed envelopes which must be endorsed "TENDER FOR ..." addressed to the Commissioner for Railways, 19 York Street, Sydney, will be received on the date and time shown for services specified. Tenders may be lodged in the Tender Box, Room 504A, 8th Floor, Railway House, 19 York Street, Sydney, or posted to the above address.

Wednesday, 5th July— 12 noon. (Extended from 31st May.)

(Extended from 31st May.)
For the supply and delivery at Signalling Workshops Store, Liverpool Road, Chuliora, of one Carrier Telephone System, as covered by Departmental Specification No. 84. Copies of Specification (2/6 per copy) and further particulars obtainable from Signal and Telegraph Engineer, Room 808, 19 70rk Street, Sydney.

No tenders secessarily accepted. Make cheques payable to Commissioner for Railways. Any tender unaccompanied by deposit as provided in conditions of contract may be rejected.

S. R. NICHOLAS, Secretary for Railways.



PISTON

MANUFACTURERS AND CYLINDER GRINDERS

Central Motor Engineering Co. Pty. Ltd. 99 CROWN ST., SYDNEY. Tel.: MA 2538



ALSO PRESSWORK, CAPSTANWORK REPETITION ENGINEERING FULLY EQUIPPED TOOLROOM

7 ETHEL STREET ERSKINEVILLE, N.S.W. LA 3194

BUILT IN A RANGE FROM 9"-60" DIAMETER.
BELT OR MOTOR DRIVEN.

INDUSTRIAL CENTRIFUGALS

Baskets 9"-60" dis. Fabricated from Mild or Statiless Steel, Monel Metal, Copper, etc. Experimental Markins (moter drives), with Statiless Steel Basket, obtainable on hirs at nominal charge.

ROY BURTON & CO., PTY. LTD.

148-150 Clarendon St., South Melbourne, S.C.5. MX 2231 and 2239. 765 Botany Rd., Waterloo, N.S.W. MU 2760.

THOMPSON & WILLIAMS

MACHINE TOOL MERCHANTS and ENGINEERS' SUPPLIES
28 MARKET STREET, MELBOURNE.

Telephones: MB 2121 and MB 2122.

AUSTRALASIAN AGENTS for CHURCHILL REDMAN, HALIFAX, Highclass Lathes and Shaping Machines; JOHN LUND LIMITED, KEIGHLEY, Preciman Frecision Grinding Machines, Universal, Cylindrical, Vertual, and Rotary. Fine Milling and Fine Boring Machines. All Hydraulically Operated.

DISTRIBUTORS: DEMOO MACHINERY COY.

INDEX OF ADVERTISERS

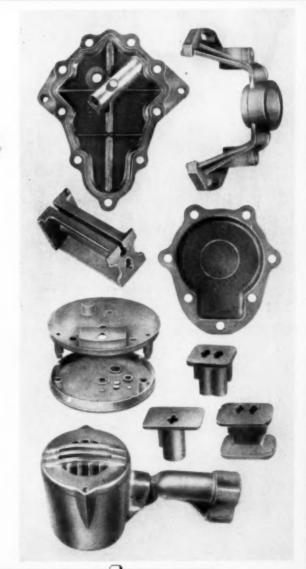
Vol. XXXV - No. 1783 JUNE 3, 1950

-					
Abbott, J. A	38	Excelsior Eupply Co Pty. Ltd	54	Modern Tools Pty. Ltd	74
Acme Eng. Co.	48	Extruded Metals Pty. Ltd	86	Morison & Bearby Ltd	10
Acta Lag.	- 00	Factory Equipment & Eng. Works	64	Morris, J., Eng. Co.	63
Advanx Tyre & Rubber Co. Pty. Ltd	23	Falkiner Machinery Co. Pty. Ltd Farrer, J. H., & Co. Pty. Ltd	37	Morris, McMahon & Co	69
Alger C & None	40	Farrer, J. H., & Co. Pty. Ltd	69	N.S.W. Government Railways	
Alpha Eng. Co. Pty. Ltd. Amplion (A'asia.) Pty. Ltd.	84	Flavell, A., Ptv. Ltd.	43	Nettlefolde Dtv I td	5
Amplion (A'asia,) Ptv. Ltd	76	Flexible File Co	36	Nettlefolds Pty. Ltd. Norton Tootill & Co. Pty. Ltd.	0.0
Anny Gaskets	79	Ford Motor Co. of Aust. Pty. Ltd	17	Noyes Bros. (Melbourne) Limited	01
Apax Gaskets Armstrong, R. H., & Co. Pty. Ltd.	73	G. M. F. Electric Motors Pty. Ltd		Noyes Bros. (Methourne) Limited	02
Artiny Manufacturing Co	20	Gadaden, J., Pty. Ltd.		Oakey, J., & Sons Ltd	58
		Garden, W. or A Co Div. 144 (Front Con.	100	Pauer & Co. Pty. Ltd	41
Atlantic Union Oil Co Ltd	9	Gardner Waern & Co. Pty. Ltd. (Front Cov.	01	Perkins (Aust.) Pty. Ltd	33
Atlantic Union Oil Co. Ltd. Atkins, W., Pty. Ltd. Austral Bronse Co. Pty. Ltd.	81	Gayfer, G. R., & Co.	00	Permanent Magnets Pty. Ltd	38
Austral Bronze Co Ptv Ltd	13	General Bolts & Nuts Pty. Ltd.	000	Phillips, Ormonde, Le Plastrier & Kelson	64
Australian Aluminium Co. Pty. Ltd	11	Gilbro Eng. Co.	20	Picot, Essex R., Pty, Ltd.	36
Australian Cotton Mfg. Co. Pty. Ltd	81	Goddard, H. G., Pty. Ltd.	3	Oakey, J., & Soas Ltd. Pauer & Co. Pty. Ltd. Perkins (Aust.) Pty. Ltd. Permanent Magneta Pty. Ltd. Permanent Magneta Pty. Ltd. Phillips, Ormonde. Le Plastrier & Kelson Picot, Essex, R., Pty. Ltd. Pneumette Tool & Eng. Co. Pty. Ltd.	20
Australian Durex Products Pty. Ltd	48	Goff, H. R., Pty. Ltd.	71		
Australian General Electric Pty. Ltd	4	Conduit & Co. Pty. Ltd.	HE CO	Precision Gasket & Washer Co	39
Australian Wire Rope Works Ltd	82	Goodall & Co. Pty. Ltd. Goodwin, A. E., Ltd. Gordon Bros. Pty. Ltd.	80	Preston, J. H. Pty. Ltd.	50
Automatic Heating Appliances Ptv Ltd	50	Gordon Bros. Pty. Ltd.	30	Randle Photo Engraving Co. Pty. Ltd	87
Automatic Heating Appliances Pty. Ltd. Ayton Instrument Co	41	Caratage Part V D Oto 144	70	Raynors Pty. Ltd.	46
NOW THE TAX	40	Greatrex, Basil V. R., Pty. Ltd.	19	Rice, F. B.	64
B.S.F. Pty. Ltd. Ballarat Litho. & Printing Co. Pty. Ltd.	40	Granowski, O. Grantex, Basil V. R., Pty. Ltd. Gregory & Hickey Pty. Ltd. Gregory Steel Products Pty. Ltd. Griffith. Hassel & Griffith 64.65, 66.68. Gutwirth & Son 48.	0.1	Richardson, D., & Sons Pty. Ltd	
Ballarat Litho. & Printing Co. Pty. Ltd.	40	Gregory Steel Products Pty. Ltd	40	Richardson Gears Pty. Ltd.	27
Bearing Service Co. of Aust. Pty. Ltd	40	Grimth. Plassel & Grimth 04, 00, 00, 68,	00	Richardson, H., Pty. Ltd.	66
Bishop's Implements Pty. Ltd.	40	Gutwirth & Son 98,	90	Rieper & Trumble	70
Bleakley, H., & Co. (1910) Pty. Ltd	40	Hall. J. R., & Co	73	Robertson, C. H.	46
Borthwick, T. A., Pty. Ltd. Bradley Washfountain Co. of Aust	18	Hardie, J. M., & Co	26	Robertson, C. H. Rodda, S. N. Pty. Ltd. Rowe, H., & Co. Pty. Ltd.	38
Bradley Washfountain Co. of Aust	36	Harris, Hutchinson Pty. Ltd	0D ·	Rowe, H., & Co. Pty. Ltd	14
Bradshaw Automatics Pty. Ltd	00	Hart, John, Pty. Ltd.	36	Rubery Owen & Kemsley (Ptv.) Ltd	25
Brenco Pty. Ltd	61	Hartford Fire Insurance Co	41	Ryan, F. & T., Bros.	82
Brock Bros.	82	Hawker Richardson & Co. Ltd. Hayman, E.	85	Ryan, F. & T. Bros. S. T. G. Pty. Ltd.	2
Broom & Wade (Aust.) Pty. Ltd		Hayman, E.	00	Sample G. H. & Son Scruttons Pty Ltd.	65
Burton, R. & Co. Pty. Ltd		Henderson's Federal Spring Works Pty.		Scruttone Pty. Ltd.	47
C. C. Die Castings Ltd	91	Ltd.	66	Selex Decal Pty. Ltd	24
Cablemakers (Australia) Pty. Ltd		Herbert, Alfred (A'asia.) Pty. Ltd	63	Eilicate & Dolomite Co. of Aust. Pty. Ltd.	81
Carmichael, W. T., Ltd.	36	Herbert, A. E., Pty. Ltd.	37	Silverwater Rubber Co. Pty. Ltd	79
Carr Fastener Co. of A. Ltd	87	Hipsleys Ltd.	83	Smith, S., & Sons (Aust.) Pty. Ltd	78
Carrier Air Conditioning Ltd	60	Hobsons Eng. Co.	80	Smith, Wallace, A	65
Cartwright, O. F	04	Hodgsons Dye Agencies Pty. Ltd	60	Standard Chemical Co.	82
Cash Eng. Co	31			Steelcraft Pty. Ltd.	91
Cave, Arthur S.	06	Holder, Stroud Pty. Ltd. Hopkine, Odlum Pty. Ltd.	1.0	Steen, W. B., Pty. Ltd.	60
Ceelx Pty. Ltd.	49	Hopkine, Odlum Pty. Ltd.	31	Stokes Foundries Pty Ltd	80
Central Motor Eng. Co. Pty. Ltd	89	Hoskins Eng. & Foundry Pty. Ltd	31	Sunshine Porcelain Potteries Pty. Ltd	24
Cheers, A. C.	7.6	Hughes R. Pty. Ltd.	90	Superstat Ltd.	
Cleveland Machinery Co. Pty. Ltd	60	Incandescent Heat Co. International Combustion (A'asia.) Pty.	8	Swift & Co. Limited	24
Churchiey, R. B., Pty. Ltd.	00	International Compustion (Alasia.) Pty.	ma.	Taylor & Wearing	99
Clayton, Joel, & Co	26	Ltd.	19	Thomas Optical & Scientific Co. Pty. Ltd. Thomas, R., & C. Bros. Pty. Ltd.	60
Clingan Bros.	18	John, M. B., Ltd.	20	Thomas, R., & C. Bros. Pty. Ltd.	02
Central Motor Eng. Co. Fty. Ltd. Cheers, A. C. Cheveland Machinery Co. Pty. Ltd. Cleveland Machinery Fty. Ltd. Clayton, Joel, & Co. Clingan Bros. Comerford, C. F. Coote & Jorgensen Ltd.	86	Jones Bros. Coal Pty. Ltd.	61	I nompson & Williams	90
Coote & Jorgensen Ltd	12	Jones & Rickard Pty. Ltd	04	Thompsons (Castlemaine) Ltd	38
Court & Bevan	8.6	Jones Bros. Coal Pty. Ltd. Jones & Rickard Pty. Ltd. Joseph Auto Hot Pty. Ltd.	0.2	Thompson & Williams Thompsons (Castlemaine) Ltd. Thornthwaite, H. G., & Co. Tinsley, Eliza, Pty. Ltd.	50
Coventry Chmax Engines Ltd	- 0	Kent, George, Ltd. Langdon, H. J., & Co. Pty. Ltd.	77	Tinsley, Eliza, Pty. Ltd.	47
Cox & Bates Crane, G. E., & Sons Ltd.	06	Langdon, H. J., & Co. Pty. Ltd	62	Tyree Electrical Co	21
Crane, G. E., & Sons Ltd	38	Lincoln Electric Co. (A.) Pty. Ltd	42	University Graham Instrument Co	7
Crystal Laporte Pty. Ltd.	37	Ludowici, J. C., & Son Ltd	6	Van Gelder, J. P., & Co. Pty. Ltd	68
Cumming, J., & Sons	37	Mack, M. E	41		83
Custer, D. W., Pty. Ltd.	06	Mackie, A. H.	60	Warburton, Franki Ltd	
Dewey & Almy Pty. Ltd	34	Main, T., & Sons Pty. Ltd.	19	Warman & Douglas	78
Cumming, J., & Sons Custer, D. W., Pty. Ltd. Dewey & Almy Pty. Ltd. Demco Machinery Co. Pty. Ltd.	54	Mangrovite Belting Ltd	67	Watt, A. V., & Co	38
Diamond & Boart Products (Australia) Pty. Ltd.			35	Wells, W. H., Pty, Ltd.	87
Pty. Ltd.	19		83	Welsh, J., Pty. Ltd.	30
Dominion Factors Pty. Ltd	59	3.6 1 5 50 500	65	Wernard, J., & Co.	87
Donald Eng. Co	30	Mastercraft Plastics	36	Wernard, J., & Co. Wessberg & Tulander Pty. Ltd. Westate Tube & Eng. Co. Ltd.	21
Douglas, P. K. Ducon Condenser Ltd.	30	McKay, H. V., Massey Harris Pty. Ltd	88	Westate Tube & Eng. Co. Ltd	31
Ducon Condenser Ltd	46	McLelinn, W. J., & Co. Pty. Ltd	80	West Footscray Eng. Works Pty. Ltd While, J. & Sons Pty. Ltd	26
E. W. Fittings Ltd Eagle & Globe Steel Co. Ltd	50	Melbourne Wire Works	84	While, J., & Sons Pty. Ltd.	68
Eagle & Globe Steel Co. Ltd	56	Aietal Coatings Pty. Ltd	89	Wilson Waratah Metal Co. Ltd.	30
East Asiatic Co. (Aust.) Pty. Ltd Edmonds, N. E.	63	Metalex Pty. Ltd.	32	Witzig, P., & Co. Pty. Ltd 48,	60
Edmonds, N. E.	2	Mastercraft Plastics McKay, H. V., Massey Harris Pty. Ltd. McLellan, W. J., & Co. Pty. Ltd. McBourne Wire Works Metal Contings Pty. Ltd. Miller & Co. Miller & Co. Mingrais Pty. Ltd.	38	Woodward & Thurston	86
Electrical Mechanical Construction Co	36	Minerals Pty. Ltd.	80	Zypfit Pulleys Pty. Ltd	43

Cast your eyes over these Castings!

Enlarged plant facilities now make possible record production of "C.C." precision Die Castings. These Castings in all non-ferrous metals are available in almost any quantity to your own specifications... and they are produced with the economy that for years has made "C.C." Die Castings sought after by leading industries throughout Australia.

Let us know your needs, our Engineers will advise you without obligation.



Telephones : UL 1339 UL 1344



DIE CASTINGS LTD.

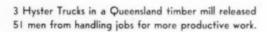
Works and Foundry: 80 Belmore Road, Punchbowl Head Office: 213 Bridge Rd., Glebe, N.S.W.



Cables and Telegrams: "CASTINGS," Sydney.

HYSTER

"Puts 51 men
on productive work . . .
cuts unloading time
by 95 %"



One Hyster 150, with driver and labourer, reduced man-hour cost of unloading 10-ton railway trucks by 95 \%.

These are examples of the staggering savings a Hyster 150 can make. If you have any heavy handling, let us demonstrate the advantages Hyster offers you.





N.S.W.:

NORTON TOOTILL & COMPANY PTY. LTD.

QLD.:

Head Office: 40 King Street, Sydney. Tel.: BX 3215. Wollongong: 300 Crown Street.
Old. Branch: 112 Charlotte Street, Brisbane. B 2820.

VIC. &

WILLIAM ADAMS & COMPANY LIMITED

TAS .:

VIC.: Collins Street, Melbourne.

TAS .: Derwent Park, Hobart,